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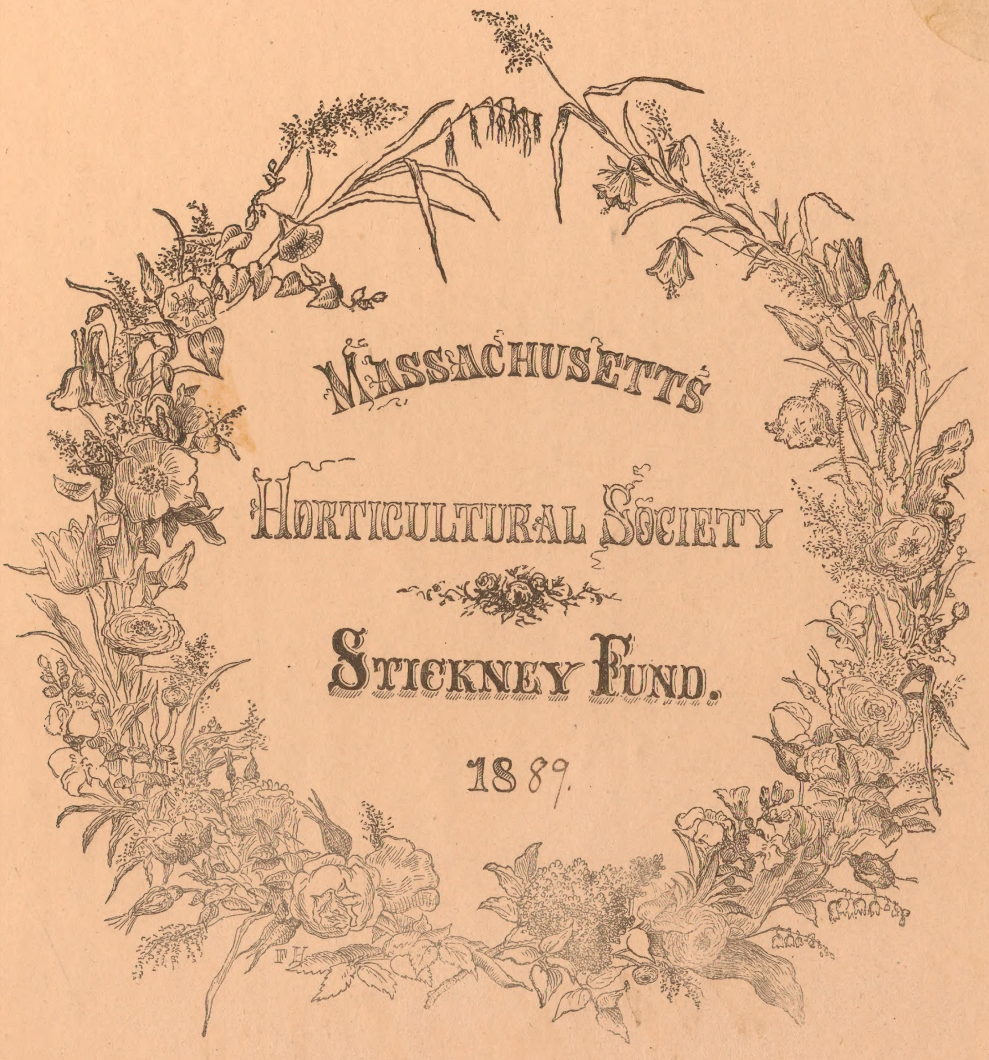

MASSACHUSETTS
HORTICULTURAL SOCIETY
STICKNEY FUND.
1889.

REGULATIONS FOR THE LIBRARY
OF THE
Massachusetts Horticultural Society,
ADOPTED 1861.

ARTICLE I.

All Books, Manuscripts, Drawings, Engravings, Paintings, Models, Furniture, and other articles appertaining to the Library, shall be confined to the special care of the Committee on the Library.

ARTICLE II.

When any Books or Publications are added to the Library, a list thereof shall be posted up in the Library Room, and all such additions shall be withheld from circulation for the term of one month.

ARTICLE III.

The following Books of Record shall be kept:—

No. 1. A Catalogue of the Books.
No. 2. A Catalogue of the Manuscripts, Drawings, Engravings, Paintings, Models, and all other articles.
No. 3. A list of all Donations, Bequests, Books, or other articles presented to the Society, with a date thereof, and the name and residence of the donor.

ARTICLE IV.

Rare and costly Books shall not be taken from the Library Room. A list of such works as are to be withheld from circulation shall be made out from time to time by the Library Committee, and placed in the hands of the Librarian.

ARTICLE V.

No more than two volumes shall be taken out by any member at one time, or retained longer than three weeks; and for each volume retained beyond that time a fine of ten cents per week shall be paid by the person so retaining it. And a fraction of a week shall be reckoned as a whole week in computing fines.

ARTICLE VI.

Every Book shall be returned in good order (regard being had to the necessary wear thereof with proper usage), and if any Book shall be lost or injured, the person to whom it stands charged shall, at the election of the Committee on the Library, replace it by a new volume or set, or pay for it at its value to the Society.

ARTICLE VII.

All Books shall be returned to the Library for examination on or before the first Saturday in July, annually. and remain till after the third Saturday of said month, and every person neglecting to return any Book or Books charged to him as herein required, shall pay a fine of twenty cents per week, for every volume so retained. And if at the re-opening of the Library, any Book shall still be unreturned, the person by whom it is retained shall pay for the said Book or set, as provided in Article VI, together with any fines which may have accumulated thereon; and a notice to this effect shall be forthwith mailed to him by the Librarian.

ARTICLE VIII.

No member shall loan a Book to any other person, under the penalty of a fine of $1.00.

ARTICLE IX.

When a written request shall be left at the Library for a particular Book then out, it shall be retained for the person requiring it, for one week after it shall have been returned.

ARTICLE X.

Every Book shall be numbered in the order which it is arranged in the Books of Record, and also have a copy of the foregoing regulations affixed to it.

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A CENTURY

OF

ORCHIDACEOUS PLANTS

SELECTED FROM

Curtis's Botanical Magazine,

CONSISTING OF

A HUNDRED OF THOSE MOST WORTHY OF CULTIVATION,

SYSTEMATICALLY ARRANGED, AND ILLUSTRATED WITH COLOURED FIGURES

AND DISSECTIONS CHIEFLY EXECUTED BY MR. FITCH;

THE DESCRIPTIONS BY

SIR WILLIAM JACKSON HOOKER, K.H., D.C.L., Etc.,

DIRECTOR OF THE ROYAL GARDENS OF KEW;

ACCOMPANIED BY

AN INTRODUCTION

ON THE

CULTURE AND GENERAL MANAGEMENT OF ORCHIDACEOUS PLANTS,

AND WITH

COPIOUS REMARKS ON THE TREATMENT OF EACH SPECIES,

By JOHN CHARLES LYONS, Esq.,

AUTHOR OF 'A PRACTICAL TREATISE ON THE MANAGEMENT OF ORCHIDACEOUS PLANTS.'

LONDON:
REEVE AND BENHAM, 5, HENRIETTA STREET, COVENT GARDEN.
1851.

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Chicago Botanic Garden
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INDEX.

Page.
Acropera Loddigesii 56
Aerides odoratum 69
Angræcum apiculatum 72
Anoechtochilus setaceus 76
Barkeria spectabilis 35
Batemania Colleyi 43
Bolbophyllum calamaria 17
Bonatea speciosa 74
Brassavola glauca 28
—— nodosa 27
Brassia caudata 65
—— lanceana 66
Bromheadia palustris 55
Broughtonia sanguinea 36
Calanthe veratrifolia 73
Catasetum (Myanthus) cristatum, *β*. spinigerum 46
—— globiflorum 45
—— (Monacanthus) longifolium 46
—— purum 45
—— (Monacanthus) roseo-album 46
—— (Myanthus) trifidum 45
Cattleya citrina 34
—— crispa 33
—— guttata, *β* Russeliana 34
—— integerrima, *var.* angustifolia 33
—— labiata 32
—— Mossiæ 32
—— superba 33
Chysis aurea 58
Cœlogyne flaccida 15
Coryanthes maculata 51
—— maculata, *var.* Parkeri 52
—— speciosa 51
Cycnoches Loddigesii 43
—— ventricosum, *var.* Egertonianum 44
Cypripedium macranthum 78

Page.
Cyrtochilum maculatum 63
Dendrobium aggregatum 20
—— crumentatum 20
—— densiflorum 20
—— fimbriatum, *var.* oculatum 21
—— macrophyllum 22
—— moniliforme 21
—— moschatum 22
—— speciosum 19
Disa cornuta 75
—— grandiflora 75
Epidendrum calocheilum 24
—— cepiforme 24
—— Grahami 25
—— macrocheilum 25
—— Parkinsonianum 24
—— vitellinum 25
Eria stellata 18
Gongora atro-purpurea 50
—— maculata 50
Habenaria gigantea 73
Houlletia Brocklehurstiana 42
Lælia anceps 30
—— autumnalis 30
—— furfuracea 30
—— peduncularis 31
—— superbiens 29
Megaclinium maximum 16
Masdevallia fenestrata 59
Maxillaria aureo-fulva 41
—— (Lycaste) Deppii 40
—— (Lycaste) fulvescens 41
—— (Lycaste) Harrisoniæ 40
Miltonia candida; *var.* flavescens 67
—— Clowesii 67
—— spectabilis 66

INDEX.

Page.

Odontoglossum grande 64
—— pulchellum 64
Oncidium crispum 62
—— papilio 62
Peristeria Barkeri 54
—— elata 53
—— Humboldtii ; *var.* fulva 54
—— pendula 53
Phajus albus 38
—— bicolor 37
—— grandifolius 37
—— maculatus 38
Pleurothallis Saurocephalus 14
Pterostylis concinna 77

Page.

Renanthera coccinea . . . . ~~6~~0 7
Rodriguezia secunda . . . . ~~7~~0 6
Saccolabium guttatum 71
Schomburgkia marginata 26
Sophronites grandiflora 39
Stanhopea eburnea 48
—— insignis 49
—— tigrina 48
Trichopilia tortilis . . . . ~~59~~ 75
Vanda Roxburghii ; *var.* unicolor 68
—— teres 68
Zygopetalon Mackaii ; β. crinitum 57
—— maxillare 57
—— rostratum 56

REMARKS
ON THE
CULTURE AND TREATMENT
OF
ORCHIDACEOUS PLANTS.

BY JOHN CHARLES LYONS, Esq.,

It is rather a difficult task to lay down any rules, as the best, for the culture of Orchidaceous Plants, when they are found to thrive, in many cases, under such very opposite treatment. We may, however, venture to assert, that that system of culture, the nearest approaching to nature, is the best calculated to supply all their wants, and the most probable to lead to satisfactory results, in their growth and flowering. Their successful culture depends on several matters, the first of which is a well-constructed house, or, what is much to be preferred, well-constructed houses. This building should be so arranged as to be easily heated and kept at any required point of temperature—to admit light, at the same time that the scorching rays of the sun can be excluded—to be capable of generating the desired and necessary quantity of moisture through it, either by means of evaporation or the admission of steam—of admitting a free and general circulation of air, at the same time that it excludes all cold and partial blasts—it should be so managed in the glazing, as to prevent, as much as possible, the drops from the condensed atmosphere, or from bad workmanship, from falling on the plants—it should be provided with an ample supply of water for every purpose. These are all matters of considerable moment, and without strict attention to them, success need not be expected.

When the natural habitats of this extensive family of plants are taken into consideration, as well as the nature of the climates in which they are found to abound, the impossibility of dispensing with them must strike the cultivator. The Epiphytal division of Orchidaceæ are found in various situations, and under very different circumstances; some are discovered growing on trees in dense woods and in moist situations, where the beams of the sun cannot by possibility reach them—others are found in open situations in woods, exposed to light and partially to the sun, with a free circulation of air—again, others are found in exposed situations on single trees, in damp localities—and, lastly, some are discovered in elevated situations, on single trees, fully exposed to the burning sun and a drier atmosphere. Under such circumstances, it will be impossible to satisfy the natural wants of all such plants, in the same house and under the same treatment, hence the necessity of having at least two buildings for a general collection. It is by no means unusual to see several plants flourishing in some collections, which can scarcely be preserved or induced to exist in others, and plants which are accounted the most difficult to treat by some, may frequently be observed luxuriating under apparent neglect; but the simple fact in such cases is, that probably by chance, they are in a natural position, and their necessary wants are supplied by accidental circumstances.

Having enumerated such matters as we conceive to be indispensable in a well-regulated House, we may be expected to make a few remarks on the best mode of obtaining them:

1st. The facility of heating and keeping up the temperature of the House.
2nd. The admission of light, and the exclusion of the sun.
3rd. Moisture.
4th. Ventilation.
5th. Glazing.
6th. A sufficient supply of water.

1st. HEATING AND KEEPING UP THE TEMPERATURE. We must premise, that we cannot contemplate a form of house for the growth of *any* plants, save a double roofed building, neither can we suppose, in the present advanced state of horticultural knowledge, such an appendage as a smoke flue. We should, therefore, for all required purposes, recommend the adoption of the ribbed boiler and metal tanks of Burbidge and Healy, and, in so doing, we beg it may not be imagined, that our recommendation is to the prejudice of other manufacturers of similar articles, far from it; but we have used those manufactured by this Firm for some time, we are perfectly satisfied with them, they answer the intention fully, perform their functions of generating heat and moisture to our satisfaction, and appear to us so well and fairly manufactured, fitted and completed in every respect, as not to be likely to require any repairs. From the thorough knowledge and extensive practice which this firm have had in heating horticultural buildings, it is not possible to contemplate a failure. By this mode of heating, a steady temperature is obtained, and moisture to the point of saturation when required.

2nd. THE ADMISSION OF LIGHT, AND THE EXCLUSION OF THE SUN. This we shall subdivide, and at present confine ourselves to the exclusion of the burning sun-beams, the remaining part may be more properly considered under the 5th. head. This material desideratum in growing *some* Orchidaceæ may be easily effected, to a considerable extent at least, by a judicious selection of creepers trained along the wires of the roof of the house, and grown either in large pots, slate boxes, or compartments in the ends of the house or adjoining the walks. The latter mode is to be preferred for luxuriant growing plants, particularly where there is a large extent of roof to be covered. A selection of creepers for this purpose can easily be obtained from other sources, but we should recommend for adoption such plants as are least liable to be attacked by the scale or fly. We have found sulphate of zinc, ground in linseed oil, and the glass painted externally with this preparation, afford a very subdued and pleasing light at all times. It has the appearance and effect of muffed glass, and, in the early part of the year, before the sun-beams become too strong, will be found to answer every purpose, but as the summer proceeds and the heat becomes more powerful, other means must be resorted to, or the house will become so over-heated, that a superabundant admission of air to keep down the temperature, will be found necessary. This has the effect of perfectly drying up the moisture of the house, recourse must therefore be had to canvas blinds, so constructed as to be rolled up and drawn down with facility and expedition. These, by occasionally throwing water over the walks and plant shelves, will prevent the house from being over-heated, and the atmosphere from being injuriously dried up, by the admission of too great a volume of air. Injury to the plants need not be apprehended from an *occasional* temperature, even exceeding 100°, *if the atmosphere is moist.* The canvas blinds for a large house are somewhat expensive in the first instance, but a further arrangement may be made, which in the end will be found to be a saving, viz., by having a second set of blinds to replace those of canvas, of a strong, thick, and coarse material, to be drawn down every evening at dark, during winter. This will resist the cold and frosts to a considerable extent, and be found to be a great saving of fuel during that season. A contrivance of this nature has been adopted at Chatsworth, on an extensive scale, with expensive machinery, by which means, the entire roof of one of the

Orchidaceous Houses is covered at night, by a distinct thatched roof being wheeled over it. In a small way much may be done by the above simple contrivance, at a moderate cost.

3rd. Moisture. That a considerable quantity of moisture is indispensable at certain periods, as conducive to and necessary for the health and growth of Orchidaceæ, does not admit of a doubt. They are thus supplied by nature, and require it from our hands. The periods when they receive it in their natural habitats, exclusive of the rainy season, is at night, when the temperature is low. *Then* the evaporation is considerable, and the temperature is actually cold, most particularly so for about two hours before the break of day; but after sun-rise, the temperature increases rapidly, and in the East and West Indies, the heat of the atmosphere is parching and oppressive. The superabundant damp and wet of the night dews are evaporated, and the plants become so dried, that no injury occurs to the young and tender shoots, which in our houses would probably prove fatal to them. We cannot, therefore, with safety, admit the night moisture or a low temperature to the extent they experience in their native habitats, but much may and must be done with both, to insure the health of the plants.

4th. Ventilation. The house ought to be capable of affording this requisite, to the utmost extent which can be required, and the arrangements for this purpose ought to be under *such* command, that the temperature can be so regulated as to insure, in a house of any extent, the power of keeping a certain part of it at a lower degree of heat than the remainder. This observation is particularly applicable to where there is but one house for the growth of a general collection of Orchidaceæ. The object may be attained in a double-roofed house, by the insertion of ventilators in the side walls, which will insure a cross current of air in such a portion of it, as is appropriated to plants from Mexico, Guatemala, &c., requiring a much lower degree of temperature than others. The admission of the air by such means frequently creates a cold, sharp current, which, coming in immediate contact with plants, may prove injurious; this may be easily avoided by covering the aperture with perforated zinc, or simply by placing a slate, or any more ornamental obstruction to the volume of cold air, before the ope for its admission, and thereby giving it an indirect course into the house. The upper part of the house ought to be fully under command; without this, that portion of it near the glass will be found to be unwholesomely oppressive. The rarified air being in its nature comparatively light, is displaced by a more dense atmosphere, which without means of egress, will render the upper part of the house unfit for the existence of plants, whose natural position is in the open air.

5th. Glazing. This is a mere mechanical operation, and ought to be done in the best manner. The principal object in observing on this point, is to present to our readers the necessity of guarding against the injury, arising to plants from drops from the roof of the house. Much of this, in our opinion, may be obviated by avoiding a flat pitch in the roof, and, although it may not be so pleasing to the eye, we recommend the sashes should be placed at an angle of 37, certainly not less than 35 degrees. Much has lately been effected towards materially improving horticultural buildings in this particular, by the strenuous, determined, and uncompromising Editorial articles in the '*Gardener's Chronicle*,' which have succeeded in enabling the public to obtain glass at a fair and reasonable price; nor does the benefit end here, it can now be obtained in lengths from 20 to 30 inches, thereby avoiding not only the frequent laps and consequent drops, but admitting a much greater degree of light; this latter is a considerable advantage in the growing of plants.

6th. A SUFFICIENT SUPPLY OF WATER. On this, our last subject, we are inclined for many reasons to lay great stress. The tribe of plants at present under consideration, require, at periods, a peculiar quantity of moisture, and unless the means of obtaining this are *at hand*, there may be some difficulty in carrying it out to the full and proper extent. We therefore recommend that a *sufficient* supply should be provided to meet the demand. This may in most cases be obtained by forming a tank underground to receive the rain-water from the roof of the Orchidaceous House, with probably the addition of what may be collected from adjoining buildings. The quantity of water for the supply of even a moderately sized house, will during summer be considerable, when we take into calculation the amount requisite for the tanks, hot-water pipes, syringing, and for evaporation when thrown on the walks and plant shelves, nor must we neglect that portion constantly required for washing the walks. In fact, water is necessary for such a variety of purposes, that there should be a supply cock *in* every house. Many requisites will be attended to when such a supply is at hand, which, if the water has to be carried from a distance, may be scantily and unsatisfactorily performed.

We prefer rain water for *all* plants, as being the most natural and purest, but particularly for Epiphytal Orchidaceæ, which, from their natural habits, could never have experienced the effects of any other. Mr. Bateman, in his unique work 'On the Orchidaceæ of Mexico and Guatemala,' remarks, that those collections which are watered exclusively with rain-water, are the least infested with small snails; and such authority is of some value.

Having thus remarked at some length on those points connected with the House, which appear to us of the greatest importance, we shall now detail the treatment which we conceive the most likely to insure success in the growth and management of a collection of plants, the first of which is the mode of potting and growing.

The most *natural* mode of cultivating by far the greatest part of the tribe is by attaching them to blocks of wood, proportioned to their size and probable growth, and suspending them from the roof of the house, or by fastening them on *large branches of trees* placed in earthenware stands. On these latter, several plants *from the same locality* may be placed, as they will probably require the same system of treatment. The blocks we find the best suited for this purpose, are the Acacia, the White-thorn, and the Apple or Crab-tree. The first two retain their rough bark the best. The plants should be fastened on the blocks with fine copper wire, and the roots should be *covered lightly* with moss. We grow plants thus, probably more extensively than in any other private collection, and with very good success. We have plants thus located growing luxuriantly, which, while in pots, were nearly dead. Some plants of *Rodriguezia secunda* have bunches of roots three feet long, the growth of a few years. Such plants as appear to thrive best when thus managed will be mentioned in their proper places. One great advantage in thus growing Orchidaceæ is, that the roots, on which everything depends, are not liable to be rotted in winter from over moisture, nor to shrivel up and perish from excessive drought; thus, it is impossible, so perfect is the system of drainage, that a superabundance of moisture can remain about them. If, however, a large quantity of moss be tied over them, it acts as a sponge in retaining the wet, and much injury may thus be done. It will, therefore, be necessary, during the winter months and periods of rest, to pay attention to the plants thus grown, to prevent excess in either cases. Another advantage in this mode of treating plants is, that they are far less liable to the attacks of wood-lice, snails, and other destructive insects. This mode, as well as placing the plants in baskets, made of either oak branches or copper wire, has a decided superiority over any other, for such plants as produce their flowers on pendulous racemes, most particularly those which protrude their flower stems low down from the sides, and from the bottom of the plants, as the genus *Stanhopea* and *Coryanthes*. In potting plants, it has been practised and strongly recommended, that they should be placed very high in the pots, and the materials built up under them; this mode is certainly useful, so far as it insures a good system of drainage, but, with proper care, we are by no means prepared to say it is necessary. We do not adopt it ourselves, and find the plants succeed remarkably well. We conceive it is not of much consequence in or on what material they are grown, so long as the roots do not dislike that material. Orchidaceous plants are not parasites; they do not derive their nourishment from the substance *on* which they grow, but from the moisture they obtain from the atmosphere.

The materials in general use are Sphagnum, chopped or broken up small, the top sod of a turfy bog, in which there is a quantity of roots of bog plants, rotten wood, sandy fibrous peat, and half-decayed leaf mould; these are kept open by a mixture of potsherds, sandstone broken small, and charcoal. Such materials are differently raised by growers, and the Epiphytal division of Orchidaceæ thrive well in them. The pots ought to be filled nearly one half with some materials to insure a perfect drainage, as lumps of charcoal, cinders, and potsherds, or a pot inverted over the vent hole with a piece of the side *broken out of it,* otherwise, it is apt to choke up, retain the water, and injure the plants, for although they luxuriate in great moisture, and occasional wet, they will not thrive if water is permitted to remain and become stagnant about their roots.

We find the plants to thrive well in the following materials: Sphagnum moss well chopped, the top sods of a turf bog, in which there is a quantity of roots and fibre, having been first steamed to destroy all insects, then dried and broken up into small lumps, with pieces of charcoal about the size of nuts, and potsherds broken small. Through this material the roots will soon run. After potting, we place some pieces of sand-stone on the surface, for the purpose of steadying the plant, as well as to prevent the light material from being disturbed. When newly imported plants are received, it will be prudent to examine and cleanse them well; they may then be suspended in a cool shady part of the house in a flat basket, or placed on a shelf until they begin to exhibit symptoms of vegetation.

Having now settled our plants in pots or on blocks &c., we must consider what degree of temperature will best suit them, and what their subsequent treatment ought to be. On the subject of temperature, difficulties may arise with imported plants, from our ignorance of the particular localities in which they were collected, but when we are informed on that point we can proceed with more certainty. They should not, if potted or placed on blocks, be watered until they form roots, or they will probably rot, but when they exhibit signs of vitality they should be gradually encouraged by every means. Such plants as are natives of Mexico and Guatemala, require a lower temperature than those from the East or West Indies, and from 55° to 60° will be found to suit them well during winter, and from 65° to 75° in summer. The night temperature ought not to fall below 55°. But even amongst the plants from those regions, variations of temperature may be found to be salutary, arising from the different elevations in which they are discovered.

In every instance the temperature at night should be allowed to fall at least 10° below that of the day, otherwise, a considerable injury must be done to the plants. They, like human beings must rest at night, to enable them to perform their duties by day, which is the only time plants can digest their food and harden their texture. The amount of digestion and consequent hardening, will be in proportion to the intensity of light they receive. If they are compelled by means of such excitements as heat and moisture, to grow during the night time, they are filled with undigested sap, the wood becomes watery and soft, and the plant unhealthy; under such circumstances it cannot be expected to produce its flowers, either with strength or in profusion. When water is thrown on the walks or shelves of the house, for the purpose of creating a moist atmosphere, or when plants are syringed, it should always be done in sufficient time to allow them to take up their necessary quantity of food before dark; the fire heat ought also to be on the decline shortly after that period, by these means the injurious excitements will also be on the decline, and although sufficient heat will be in the house, that will also decline as the night proceeds; but with the return of the day-light the temperature must again be raised, and air, if possible, admitted, to dry up the superabundant moisture; by these means a wholesome climate is produced, and the dictates of nature are followed.

The Orchidaceæ which have enriched our collections from the East and West Indies, as well as from some other regions, will require a higher temperature than those from Mexico and Guatemala, but this will also depend on the elevation of their locality. To enter fully into the particulars of each region in which they are found, would extend our present undertaking beyond its proper limits. We must, therefore, content ourselves with noting a few particulars, which will be a sufficient guide in other cases. Our previous remarks as to the decrease of temperature to be observed at night, are in all cases applicable.

In the islands of the Indian and Pacific Oceans, from which so many valuable acquisitions have been obtained, the mean temperature may be reckoned to be about 78°; the climate is intensely hot, but extremely damp, even to the point of saturation; while on the continent of India, where the air is dry, except on the banks of the large rivers and their tributaries, Orchidaceous plants are not to be met with. Here the temperature may be about 80°. From Sierra Leone, which is we believe the only place in arid Africa where they are found, we have obtained several; there the temperature is about 70°, and the climate unwholesomely moist. In the West India islands, particularly Trinidad, where they are in abundance on the wooded hills, the temperature may be 76°, and there the atmosphere is unusually humid, while on the coast it is quite the reverse. At Rio Janeiro where they abound, the temperature is about 74°, with an extremely moist atmosphere. Such is the mean temperature of the principal regions from which our houses have been enriched, and with such data, trifling as they may appear, it will not, on consideration, be found difficult to deal successfully with this family of plants. In all these localities we have a tropical climate, considerable heat at certain times of the year, and a great variation in temperature within so short a period as twenty-four hours, accompanied with an equally sudden transition from parching dryness to extreme moisture. These may at first sight appear insurmountable difficulties to imitate in so confined a space as an Orchidaceous House, yet with care and attention, it can for all the purposes of cultivation be so nearly approached, as to insure success. The process of syringing Orchidaceous plants is a very common operation, and is in some places carried to a considerable extent. The indiscriminate syringing of a general collection cannot be approved of, great injuries may arise to some species from it, and it may be a great question how far it is either serviceable or judicious beyond such a sprinkling as washes and refreshes the leaves, and even that performed with caution about once, or at the utmost twice in the week. In a well-regulated and well-attended house the plants will be sufficiently moist, when it is considered they require very little water at the roots, at any time. Those grown on blocks suspended, may be most judiciously supplied by immersing the blocks in water when they become dry, thus avoiding wetting the young shoots, which frequently has the effect of causing them to damp off. In fact, we are rather doubtful about the necessity of using the syringe, *where the atmosphere of the house is kept perfectly moist.* We would not hastily altogether condemn it, but we would strongly recommend, on mature deliberation and practical experience, its well-digested, limited, and not indiscriminate application.

Epiphytal Orchidaceæ which are grown in pots, ought not to receive much water at the roots. In a state of nature they are not buried in compost, they may be partially covered with moss, and in some few instances where they fix themselves in the forked branches of trees, a small portion of decayed vegetable matter may be found amongst their roots, neither of which is sufficient to exclude them from the influence of the atmosphere. They receive moisture, occasionally, and absorb as much as they require, the remainder, is probably evaporated, and if not, it cannot remain to become stagnant about the roots; whereas, in pots as frequently treated in collections, the superabundant moisture has no means of escape, and the roots are surrounded after frequent syringing by a constantly wet material, perfectly at variance with their natural habits. This appears to be just as injurious to Epiphytal Orchidaceæ, as it would be to a sportsman to remain in his wet clothes the entire evening after a day's shooting over marshy ground; such considerations induced us to grow plants on large blocks of wood, as being the most natural mode, and as yet we have not had cause to regret it.

The next important consideration, is giving the plants a season of rest; without this they will not produce their flowers. In tropical countries vegetation is arrested though for a short period, and in our houses the plants must be subjected to a similar treatment. Their natural season of repose is during the dry season, which is accompanied by a decrease of temperature. The best time, therefore, to select for this necessary operation, is when the external excitements are the fewest, this will be found to be between the months of November and February. This period may not exactly suit every plant, and those from Brazil may be found growing strongly at this period; *they* must therefore be rested, when their growth is over and they have perfected their shoots. Then the water and moisture should be gradually withdrawn, and the temperature suffered to fall several degrees, in this state they may remain at rest from two to four months in a perfectly quiescent state. During this period they should scarcely ever receive water at the roots, except in instances where they may stand in warm situations, where they might perish from drought. The atmosphere must not be kept moist during this period or they will probably suffer from the loss of their roots. After thus resting, they are gradually to be exposed to excitement, when they will flower freely and grow vigorously.

The last subject which we find it necessary to call attention to, is the destruction of those insects which are injurious to the roots and flower-scapes of the plants, and which from negligence are found in abundance in some collections, cockroaches, crickets, wood-lice, ants, and small box snails. We have nearly got rid of wood-lice by the use of earthern stands under the large blocks, and baskets on stands, and by examining the house and plants by lamp-light, at which period all insects are particularly active, as well as by occasionally steeping them during the summer in water. Toads are also a great acquisition for destroying insects. Cockroaches we have not any, but they as well as crickets are easily destroyed by means of red wafers. Washing the plants with a stiff brush and a mixture of soft soap, sulphur, and tobacco water, we have found of great use in disposing of other troublesome visitors, and ants may be seriously inconvenienced by means of boiling water before they become so numerous as to take up their residence amongst the plants; these latter are great pests if they are permitted to increase.

We have thus given such general practical directions as we are induced to hope will be found to be sufficient to ensure success in the culture of a tribe of plants, the most exquisitely curious and beautiful of all Nature's productions. "They are rich in every shade or variety of colour; in their habits, airy and fantastic, but always elegant, replete with the richest and strongest aromatic perfumes or emitting the most refreshing and delicate odours, portraying in the extraordinary formation of their flowers the entire scope of animated nature,—beasts, birds, fishes, and reptiles, nor has the human species even escaped their mimic caricatures."

A CENTURY

OF

ORCHIDACEOUS PLANTS.

TRIBE I. MALAXIDEÆ, *Lindl.*

Pollen cohering in definite waxy masses (often called pollinia). Anther terminal, resembling a lid (operculum).—Herbs growing on trees (epiphytal) or terrestrial, with the bases of the stems or leaves often thickened.

Section I. PLEUROTHALLEÆ, *Lindl.*

Column erect, slightly lengthened out at the base.

1. PLEUROTHALLIS, *Br.*

Sepals connivent, nearly equal; the lateral ones, or all of them, connate. *Petals* smaller than the sepals. *Lip* free, nearly parallel with the column, entire, of a different shape from the petals. *Column* elongated, wingless, free, continuous with the ovary. *Anther* membranaceous at the apex. *Pollen-masses* 2, sometimes cohering at the extremity by a pulverous substance.—*Epiphytal* Herbs, with a creeping, filiform *root-stock.* Stems *filiform, monophyllous, often sheathed.* Flowers *axillary, solitary or fascicled or racemose, green or brown. Lindl.*

Name derived from πλευρὸν, a *rib*, and θάλλω, *to flower*; from the inflorescence proceeding, as it were, from what may be considered the rib of the leaf.

This genus was founded by Mr. Brown in the 2nd edition of the 'Hortus Kewensis', and the appropriateness of the name will be at once seen by a glance at the accompanying figure, where the flower-spikes seem to rise at once from the mid-rib of the leaf. Fourteen species are described by Dr. Lindley in his 'Genera and Species of Orchidaceous Plants': several additional ones have been since published in the 'Botanical Register', in Poeppig's 'Nov. Gen. et Sp. Plant. Peruv.' &c., and in other works, and many undescribed ones exist in our Herbarium; so that the genus may be considered an extensive, as it is assuredly a natural one. All are natives of the warmer parts of America, the West Indies, and Peru and Columbia; and though they have not large flowers or gaudy colours to recommend them to the horticulturist, they are very curious in their habit and in the structure of their blossoms: this is eminently the case with the only species of the genus introduced into the present volume.

In this genus will be found the smallest Orchidaceous plant which has hitherto been discovered, *P. muscoidea*, nor is it likely to be exceeded in diminutiveness when we recollect that it has not any stem, and that the leaves are only two lines and a half long; *P. tigrina* and the present subject are probably the strongest growing species. In general the species in cultivation have been obtained from different localities in South America, and thrive well on either small or large blocks of wood, with the roots lightly covered with moss; if the latter mode of growing be adopted, several species may be put on the same block. *P. recurva*, being a creeping species, is well suited for such treatment. They will also thrive well in pots.

1. PLEUROTHALLIS SAUROCEPHALUS, *Lodd.*

Lizard-flowered Pleurothallis.

PLATE I.

Stem compressed with a narrow furrow on the anterior side, terminated by a solitary flat elliptical leaf about equal in length with the spikes; bracteas short, sheathing; sepals downy, oblong, obtuse, fleshy, the lateral ones half-united; petals and bituberculated lip very minute.

PLEUROTHALLIS saurocephalus, *Lodd. Bot. Cab.* t. 1571. *Lindl. Bot. Reg.* t. 1968. *Hook. Bot. Mag.* t. 3030.

Inhabits Brazil. The general appearance of the gaping flowers of this plant is not much unlike the head of a Lizard, whence the specific name given by Mr. Loddiges. It is not easy at first sight to recognize in these blossoms the peculiar structure of an Orchidaceous plant, so conspicuous in the splendid *Cattleyas Stanhopias*, and even in the curious Lizard-Orchis of the chalk hills of our own country: but the analyses here given of the flowers will show that the same general structure prevails, though the parts are not so much developed as is usual.

TAB. I. Fig. 1. An entire flower, the outer portion consisting of the three sepals. 2. The same flower when one sepal (f. 4) has been removed, showing the two remaining sepals, partially united, and the lip and two petals concealing the column. 4. One of the petals. 5. The lip. 6. The column with its anther. 7. Inner view of an anther-case with the pollen-masses. 8. Pollen-masses:—all more or less *magnified.*

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2. CŒLOGYNE, *Lindl.*

Sepals connivent or patent, free, equal, petaloid. *Petals* sometimes uniform with the sepals, sometimes linear. *Lip* cucullate, often three-lobed, with elevated lines on the disc, or crested; sometimes entire and without crest. *Column* erect, free, winged at the margin, spreading at the apex, sometimes cucullate, the stigma two-lipped. *Anther* two-celled, inserted below the apex of the column. *Pollen-masses* four, free, incumbent: sometimes cohering at the base with a granulose matter.—Herbs *growing on trees or stones, with the base of the leaves dilated upon the pseudo-bulbs.* Leaves *coriaceous, often with distinct, equal veins, costate or plicate.* Racemes *terminal or radical, bursting from horny scales.* Flowers *showy, often fragrant. Lindl.*

Name derived from *χοῖλος, hollow,* and *γυνη*, in allusion to the hollow depression of the stigma.

Unlike the preceding genus, this is wholly unknown in the New World; and all the species hitherto discovered are natives of the East Indies. About thirty are described in books, but comparatively few are yet cultivated in our stoves; and these, I should say, are more remarkable for the delicacy and pure white of the blossoms than for anything showy. *Cœlogyne cristata,* of the 'Bot. Reg.' 1841, t. 57, is considered the most beautiful species; but the one here figured represents the general appearance of the majority of the species.

While growing, the several kinds require a hot moist temperature and a liberal supply of water, but as soon as they have perfected their growth, they should be removed to a cool and dry situation, until they again show indications of vegetation. They should be potted in turfy peat and sphagnum moss, kept open by either potsherds or charcoal. The profusion of white flowers in *C. flaccida,* drooping over the rim of the pot, renders it a desirable addition to our houses. There are, however, some of the species which will be found to thrive better on blocks of wood; thus situated, they will require a plentiful supply of water while growing. Of this genus the most desirable species are *C. Wallichiana, maculata, Gardneriana, interrupta, Cumingii, elata, cristata, barbata,* and *intermedia.* The first three require the same treatment, their habit and locality corresponding, being found either on trees or rocks in dry situations, or in the vicinity of waterfalls. They are found to thrive well with a plentiful supply of water while growing; care must however be taken to prevent the young shoots of all the species from damping off, from allowing the wet to get into and remain in them. Those species of a straggling habit of growth like a mossy piece of wood in the pot, in an erect position, to run up on.

1. CŒLOGYNE FLACCIDA, *Lindl.*

Drooping Cœlogyne.

PLATE II.

Pseudo-bulbs oblong, angled, clothed with coriaceous, acuminate, brown scales; leaves lanceolate or oblong-lanceolate on long petioles; raceme zigzag, drooping; bracteas deciduous; petals linear-lanceolate; lip ovate, three-lobed, with three elevated flexuose lines, the middle lobe ovate, auricled (or dilated) at the base, column entire. *Lindl.*

CŒLOGYNE flaccida, *Lindl. in Wall. Cat.* n. 1961. *Gen. et Sp. Orchid.* p. 39. *Hook. Bot. Mag.* t. 3318. *Lindl. Bot. Reg.* 1841. t. 31.

Discovered at Noatoke in Nepal by Dr. Wallich, by whom it was introduced to our collections.

TAB. II. Fig. 1. Side view, and fig. 2, front view of the lip. 3. Column. 4. Underside of the anther. 5. Pollen-masses:—all more or less *magnified.*

Section II. DENDROBIEÆ, *Lindl.*

Column lying upon the ovary and much lengthened out at the base.

3. MEGACLINIUM, *Lindl.*

Sepals erect, unequal, the side ones smaller and united with the column. *Petals* dwarf. *Lip* minute, entire, elastically articulated with the base of the column. *Column* minute, margined, disciform, lying upon the base of the ovary, scarcely lengthened out at the base. *Anther* obsoletely two-celled. *Pollen-masses* four, free, cohering in pairs, equal.—*Epiphytal* Herbs, *with a creeping pseudo-bulbiferous* root-stock. Leaves *coriaceous, veinless.* Racemes *radical.* Rachis (*or main flower-stalk*) *dilated and compressed.*

Here again we have a most appropriate generic name, derived as it is from μέγας, *large*, and κλἶνή, a *bed*; having allusion to the very curious broad rachis in which the blossoms are, as it were, embedded.

These blossoms are inserted upon a central line on each side the rachis, they are small as in all the genus, and in some points of view have very much the appearance of little tadpoles. Four species are described, all natives of tropical western Africa. As is the case with *Pleurothallis,* the species recommend themselves rather by unusual structure, than by showiness or beauty; though much of both is conspicuous when the flowers are magnified.

M. Bufo is a remarkably curious species, resembling a number of small toads on the back of a green snake, while *M. falcatum* is no less singular from the rapid movement of the labellum when stirred or agitated by the air. In the present subject the lip is not so easily set in motion as in *M. falcatum,* neither is the flower by any means devoid of beauty when observed through a strong magnifying glass. They require a hot and moist atmosphere while growing, otherwise they will not succeed. They should be potted in turfy peat well-drained, and when at rest should experience a cooler and dryer treatment.

1. MEGACLINIUM MAXIMUM, *Lindl.*

Largest Megaclinium.

Plate III.

Upper sepal acute, the lower sepals involute at the margins, very acuminate and reflexed; lip linear, revolute. *Lindl.*

Megaclinium maximum, *Lindl. Bot. Reg.* t. 1909. *Gen. et Sp. Orchid.* p. 47. *Hook. Bot. Mag.* t. 4028.

Inhabits Sierra Leone: first made known by Dr. Smeathman; imported by Messrs. Loddiges. It flowers in June and July, and claims our attention by the remarkably sword-like dilatation of the rachis or upper portion of the flower-stalk, no less than by the peculiar form and elegant markings of each individual flower, when seen under a magnifying lens.

Plate III. Fig. 1. Front view of a flower. 2. Anther-case. 3. Pollen-masses:—*magnified.*

4. BOLBOPHYLLUM, *Thouars.*

Sepals erect, acuminate, nearly equal, the side ones connate with the base of the column and oblique at their base. *Petals* minute (rarely equal to the sepals). *Lip* articulated on the base of the column, unguiculate, often entire and posticous. *Column* minute, two-toothed or two-horned at the apex. *Anther* one- or two-celled. *Pollen-masses* four, free, very unequal, sometimes united into one, sometimes cohering in pairs, one of each pair minute and lobuliform.—*Epiphytal* Herbs *with creeping pseudo-bulbiferous* root-stocks. Leaves *coriaceous, veinless.* Racemes *radical. Lindl.*

Name derived from βολβὸς, a *bulb*, and φύλλον, a *leaf*; so called from the bulb bearing the leaf at the top.

An extensive genus, all the species of which are natives of the Old World, chiefly of the East Indies; some are from tropical Africa; one from New Zealand. Of the fifty-three species described in Dr. Lindley's 'Genera and Species of Orchidaceæ' (including *Tribrachia,* Lindl., and *Anisopetalum,* Hook.), very few are in cultivation. We represent one of the most curious among them. *B. barbigerum* and *B. saltatorium* are also remarkable plants.

They all succeed best when grown on a block of wood, in a moist and hot atmosphere, but should be removed when at rest, and subjected to a cooler and drier system of treatment. The habitat of *B. cocoinum* is the Cocoa-Nut Palm.

1. BOLBOPHYLLUM CALAMARIA, *Lindl.*

Quill-stemmed Bolbophyllum.

PLATE IV.

Pseudo-bulbs four-angled, leaf oblong, plane, coriaceous, obtuse, channelled at the base; scape straight, very long, flowering at the extremity; bracteas membranaceous, withering, as long as the ovary; sepals narrow, triangular, downy at the margin; petals horn-shaped, subterete, glabrous; lip sessile, moveable, linear, furrowed at the base, all the margin tomentose, bearded above in the middle with hair; horns of the column falcate.

BOLBOPHYLLUM Calamaria, *Lindl. Bot. Reg. Suppl.* 1843. p. 70. n. 109. *Hook. Bot. Mag.* t. 4088.

Native of Sierra Leone: whence it was imported by Mr. Gray of Greenock. Although the flowers are small they are highly curious, from the rich, purple, long, shaggy tuft of hairs which clothes the upper side of the lip, and from the lax joint at the base of this lip, which renders it moveable with the lightest touch, or even with the breeze. But this character is much more remarkable in a nearly allied species, *Bolbophyllum barbigerum,* where the faintest breath, the air occasioned by a person passing near it, sets the lip in motion, and not the lip of one only, but of all the flowers, so that they would seem to be endowed with animal life, moving up and down like the head of a Chinese mandarin.

PLATE IV. Fig. 1. Lip and column. 3. Anther. 4, 5. Pollen-masses:—more or less *magnified.*

5. ERIA, *Lindl.*

Sepals semi-patent, or closed, unequal, externally woolly or glabrous, the lateral ones very unequal at the base, connate with the lower part of the column and resembling a spur. *Petals* equal to, or smaller than, the sepals. *Lip* articulated with the prolonged base of the column, three-lobed, rarely nearly entire, cucullate; the disc callous or crested. *Column* much prolonged at the base. *Anther* terminal, two-celled; the *cells* divided into four compartments. *Pollen-masses* eight, sometimes all free, sometimes cohering by an elastic gland-like substance.—Herbs *growing on trees, with fleshy* stems, *sheathed and marked with the scars of fallen leaves.* Leaves *often plicate.* Racemes *simple, erect, with often dilated* bracts. Flowers *sometimes conspicuous. Lindl.*

Name derived from ἔριον, *wool;* in allusion to the woolly surface of the flowers in many species.

Of this genus of *Orchidaceæ* there are many species in our collections, all from the East Indies; but we believe the present subject is amongst the earliest introduced into our stoves. It first flowered in the collection of Mr. Cattley, one of the oldest cultivators of Orchideous plants. The several species differ materially from each other in habit; the flower-stems of *E. floribunda, polyura, densiflora, convallarioides, vestita, &c.*, being drooping; while those of the present subject, as well as *Armeniaca, longilabris, &c.*, grow upright. They also vary much in habit, some of the species throwing out their flower-stems from the bottom of the shoot, while in others they are projected from the summit. They grow well in turfy peat and sphagnum moss, kept open by lumps of charcoal or potsherds. The former is much to be preferred in consequence of its lightness, when the plants are grown in baskets and suspended from the roof. They must have a good drainage and be kept in a warm part of the house, in a moist atmosphere. *E. pubescens, floribunda*, and some others, thrive and flower well in baskets. The flowers of this genus can not be ranked amongst the most desirable of the family, but they are worth cultivating, because they generally exhibit their blossoms late in the year.

1. ERIA STELLATA, *Lindl.*

Star-flowered Eria.

PLATE V.

Leaves lanceolate, fleshy, five-costate; sepals pubescent and, as well as the petals, linear-lanceolate, acuminate; lateral lobes of the lip tri-costate, obtuse, the intermediate one acuminate; scape elongated, radical, many-flowered, and, as well as the ovary, clothed with ferruginous down. *Lindl.*

ERIA stellata, *Lindl. Bot. Reg.* t. 904. *Hook. Bot. Mag.* t. 3605. *Lindl. Gen. et Sp. Orchid.* p. 47.

DENDROBIUM (?) Javanicum, *Sw. Act. Holm.* 1800. p. 247.

OCTOMERIA stellata, *Spreng. Syst. Veget.* vol. iv. p. 310.

A native of Java, but by whom introduced is not known. The long curved spike of copious, fragrant, stellated flowers, and the creeping habit with ample and graceful foliage, combine to render this a desirable plant for our stoves.

PLATE V. Fig. 1. Column, anther, and lips. 2. Anther-cases. 3. Pollen-masses:—*magnified.*

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6. DENDROBIUM, *Sw.*

Sepals membranaceous, erect or patent, the lateral ones larger, oblique, connate with the prolonged base of the column. *Petals* often larger than the superior sepal, sometimes smaller, always membranaceous. *Lip* articulated with the lower part of the column, or connate, always sessile, undivided or three-lobed, often membranaceous, sometimes appendiculated. *Column* semi-terete, much prolonged at the base. *Anther* two-celled. *Pollen-masses* four, collateral by pairs.—*Epiphytal* Herbs, *sometimes caulescent, sometimes pseudo-bulbiferous with a creeping* rhizoma. Leaves *plane, often veined.* Flowers *solitary, fasciculated, or racemose, showy. Lindl.*

The name is derived from δένδρον, a *tree*, and βίοω, *to live*; from the species living on the trunks or branches of trees.

This genus produces, probably, more interesting and splendid specimens than any other, from the rich and delicate tints of the flowers, the peculiarity and brilliancy of their colours, and their delicious perfumes; and its species ought to be in every collection. To treat them with justice, a second house is absolutely necessary, being in their native localities subjected to a very high temperature, great moisture, and at certain periods a continuance of rain, none of which could with propriety, or indeed safety, be applied to plants from Mexico, Brazil and Guatemala. Amongst the most splendid individuals of this genus, the major part of which, in a suitable house, are not difficult to cultivate, may probably be named *D. nobile,* with its strikingly beautiful pink and white flowers; *Gibsoni,* with rich orange-coloured blossoms; *formosum,* as well for its delicate white flowers as for the delicious perfume which they emit; the splendid and delicate *Devonianum,* rich in a variety of tints; and *Cambridgeanum,* with its pale and delicate yellow flowers, having a rich dark purple spot on the labellum: the last named species was found growing on rocks, at an elevation of 4,000 feet. All these, and many more valuable additions, were the produce of Mr. J. Gibson's voyage to India. *D. speciosum,* the native country of which is New South Wales, has been generally found reluctant to flower, owing, perhaps, to its being submitted to too high a degree of temperature it succeeds best when treated as a green-house plant. *D. crumenatum* is very easily reared, it flourishes most on a block of wood, in consequence of the position assumed by its stems and flower-spikes; the flowers have a perfume like violets. The flower-stems of *D. aggregatum* spring from the side of the pseudo-bulbs, and also thrive well fastened on a block. *D. densiflorum* is another of Mr. Gibson's importations, found by him at an elevation of 3,000 feet, in shady moist woods. *D. fimbriatum,* the flowers of which hang very gracefully, was detected growing on trees in Nepal by Dr. Wallich. *D. moniliforme* is amongst the most pleasing of the genus; the clear rose-colour of the sepals and petals, with the crimson of the labellum, render it a valuable addition to a family of plants, of which so many produce yellowish-green flowers. *D. moschatum* is no less desirable a species; the size and colour of the flowers, with their musk-like perfume, must always make it a favorite. The genus, although requiring care and attention, is not difficult to cultivate; the plants demand a season of growth, a season of rest, and a season of flowering; without the two first, the last need not be expected. The season of rest in their native localities is the cold season; in the hot season they produce their flowers, and perfect their shoots and growth during the rainy season. Thus treated, they grow well in turfy peat and sphagnum, well-drained, in pots or baskets; for the tall and robust growing species, pots will be found best, from the facility thereby afforded of using stakes as supports where necessary. This mode of treatment applies to the species from India, and climates of a somewhat similar nature; while those from New Holland and New South Wales, as *D. cucumerinum, elongatum, Kingianum, linguæforme, rigidum, speciosum, &c.*, require a much cooler temperature to ensure success.

1. DENDROBIUM SPECIOSUM, *Sm.*

Showy Dendrobium.

PLATE VI.

Stems erect, 2–3-leaved at the summit; leaves oval-oblong, entire, shorter than the many-flowered terminal raceme; segments of the perianth narrow-oblong; lip below the division with a single keel, intermediate lobe broader than long, without a keel. *Br.*

DENDROBIUM speciosum, *Sm. Ex. Bot.* p. 17. t. 10. *Br. Prodr. Fl. Nov. Holl.* p. 332. *Ait. Hort. Kew.* ed. 2. vol. v. p. 212. *Hook. Bot. Mag.* t. 3074. *Lindl. Gen. et Sp. Orchid.* p. 87. *Bot. Reg.* t. 1610.

A native of New Holland, which requires, as above observed, a rather cool temperature.

PLATE VI. Fig. 1. Flower:—*slightly magnified.* 2. Column or lip, the latter forced back to show more of the former. 3. Front view of the column. 4. Interior view of the lip. 5. Pollen-masses:—more or less *magnified.*

2. DENDROBIUM CRUMENATUM, *Sw.*

Club-stemmed Dendrobium.

Plate VII.

Stems clustered, erect, thickened and terete at the base; leaves ovato-oblong, obtuse, emarginate; raceme terminal, (3-) many-flowered; sepals and petals ovate, acuminate, somewhat waved, uniform; lip cucullate, three-lobed, lateral lobes truncate, intermediate one ovate acute, disc lamellate. *Lindl.*

Dendrobium crumenatum, *Sw. Act. Holm.* 1800. p. 246. *Lindl. Gen. et Sp. Orchid.* p. 88. *Bot. Reg.* 1839, t. 22. *Hook. Bot. Mag.* t. 4013.

Angræcum crumenatum, *Rumph. Herb. Amb.* vol. vi. p. 105. t. 47. f. 2.

Onychium crumenatum, *Blum. Bijdr.* p. 326.

A native of various islands in the Indian Archipelago, and first made known by Rumphius, who called it "*crumenatum*", from a supposed resemblance in the swollen stems to a kind of bag or purse, a name which will hardly bear a literal translation as a specific one.

Plate VII. Fig. 1. Column and petals. 2. Column with the anther-case separating from it:—*magnified.*

3. DENDROBIUM AGGREGATUM, *Roxb.*

Clustered Dendrobium.

Plate VIII.

Pseudo-bulbs tufted, monophyllous, ovate, furrowed, sub-stipitate; leaves oblong, emarginate, coriaceous, nerved, almost twice shorter than the lateral cernuous many-flowered raceme; petals ovate, broader than the sepal; lip nearly entire, broader than long, with the base concave and downy.

Dendrobium aggregatum, *Roxb. Fl. Ind.* vol. iii. p. 447. *Lindl. in Wall. Cat.* n. 7411. *Bot. Reg.* t. 1695. *Hook. Bot. Mag.* t. 3643.

First detected, it would appear, on the northern border of Arracan, by Dr. Pierard, growing on the trunks of *Lagerstrœmia Reginæ*, and since by Dr. Wallich in the gulf of Martaban. Flowers in texture and colour resembling a large *Utricularia*.

Plate VIII. Fig. 1. Column and Perianth. 2. Lip:—*magnified.*

4. DENDROBIUM DENSIFLORUM, *Wall.*

Many-flowered Dendrobium.

Plate IX.

Pseudo-bulbs clavate, articulated, pendulous, leafy at the apex; leaves oblong, acute, nerved; racemes lateral, many-flowered, longer than the leaves, younger ones strobiliform; bracteas oblong, plaited, recurved, longer than the pedicels; sepals very patent, ovate, obtuse; petals of the same shape as the sepals, but larger; lip larger, rhomboid, unguiculate, serrulate, retuse. *Lindl.*

Dendrobium densiflorum, *Wall. Cat.* n. 2000. *Lindl. in Pl. As. Rar.* n. 40. *Gen. et Sp. Orchid.* p. 90. *Hook. Bot. Mag.* t. 3418.

An inhabitant of Nepal, where it flowers during the rainy seasons. Introduced to our collections by Dr. Wallich.

Fig. 1. Lip. 2. Column :—*magnified.*

DENDROBIUM FIMBRIATUM, *Wall*; *var.* OCULATUM.

Fringe-lipped Dendrobium; spotted variety.

Plate X.

Stems erect, fertile ones generally leafless; leaves lanceolate, striated; racemes many-flowered; sepals oblong, very patent, entire; petals larger, waved, ciliato-denticulate; lip undivided, cucullate, the margin laciniated and fringed.

Dendrobium fimbriatum, *Hook. Ex. Fl.* p. 71. *Wall. Cat.* n. 2011. *Lindl. Gen. et Sp. Orchid.* p. 83.

Var. *oculatum*; lip with a broad dark blood-coloured spot in the disc. (Tab. nostr. X.)

A native of Nepal, whence plants were first sent by Dr. Wallich to the Liverpool Botanic Garden. The flowers produced there, and represented in the Exotic Flora above quoted, were destitute of the blood-stained blotch, which in this variety is so remarkable, and adds so much to the beauty of the blossoms. It blooms in the Royal Gardens of Kew in September.

Fig. 1. Column. 2. Column and anther-cell. 3 and 4. Pollen-masses. 4. Portion of the margin of the lip :—*magnified.*

6. DENDROBIUM MONILIFORME, *Sw.*

Necklace-stemmed Dendrobium.

Plate XI.

Stems erect, clavate, branched, leafy, the internodes at length tumid; leaves distichous, oblong, obtuse, obliquely emarginate; flowers from the uppermost articulations of the stem, geminate, longer than the leaves; sepals oblong, acute, and, as well as the petals, ovate, striated; lip ovate, reflexed, obscurely three-lobed, attenuated at the base, the margin serrulate, the disc elevated, downy.

Dendrobium moniliforme, *Sw. Act. Holm.* 1800, p. 245. *Willd. Sp. Pl.* p. 136. *Spreng. Syst. Veget.* vol. iii. p. 738. *Lindl. Bot. Reg.* p. 1314. *Gen. et Sp. Orchid.* p. 83. *Hook. Bot. Mag.* t. 4153.

Limodorum moniliforme, *Linn. Sp. Pl.* p. 1352.

Fu Ran, *Kæmpf. Amœn. Acad.* t. 865.

A native of China and Japan, and first introduced into Europe through the medium of the Horticultural Society. It produces its truly handsome blossoms in November, and again in February, each time the flowers continuing long in perfection. The origin of the specific name is not at first apparent, but is considered to be derived from the tumid internodes of the stem in age (especially in the dried specimens), giving the appearance of a necklace; some traces of which may be observed in our figure.

Fig. 1. Column and lip :—*magnified.*

6. DENDROBIUM MACROPHYLLUM, *Lindl.*

Large-leaved Dendrobium.

Plate XII.

Leaves ovato-oblong, obtuse, nerved, subcordate at the base; sepals lanceolate, the lateral ones produced at the base; petals oblong, acute; lip pubescent, convolute, denticulate, subunguiculate, ovate, with an elevated callosity at the base which is obsoletely three-lobed. *Lindl.*

Dendrobium macrophyllum, *Lindl. in Bot. Reg. Misc.* 1839. p. 36. and 1844. *Misc.* p. 47. *Sertum Orchid.* tab. 35. *Hook. Bot. Mag.* t. 3970 (*D. macranthum*).

A truly magnificent species, native of Manilla, and thence introduced to our stoves by Mr. Loddiges. Our figure was taken from a specimen which flowered in the collection of Dillwyn Llewelyn, Esq., of Penllegar, in 1842.

Fig. 1. Column. 2. Lip. 3. Back view of column, with the attached anther-case. 4. Pollen-masses:—*magnified.*

7. DENDROBIUM MOSCHATUM, *Wall.*

Musk-scented Dendrobium.

Plate XIII.

Stems terete, pendulous; leaves oblong or oblong-ovate, subcoriaceous, faintly striated: racemes lateral, lax, 6–8-flowered; bracteas short, oblong, obtuse; sepals oblong, obtuse, very patent, and, as well as the petals, broadly ovate, obsoletely tessellated; lip unguiculate, cochleariform, very obtuse, externally hairy.

Dendrobium moschatum, *Wall. in Lindl. Gen. et Sp. Orchid. Don, Prodr. Fl. Nep.* p. 34. *Wall. Pl. As. Rar.* vol. ii. p. 83. t. 195. *Hook. Bot. Mag.* t. 3837.

Dendrobium Calceolaria, *Hook. Ex. Fl.* vol. iii. t. 184.

Epidendrum moschatum, *Buchan. apud Symes' Ava,* p. 478. *cum ic.*

A native of Pegu, Ava, and Sylhet, in the East Indies, and a very desirable inmate of the Orchideous house, flowering readily, and yielding a faint fragrance, which has by some been compared to that of musk (whence the specific name), by others to the common yellow Water-lily, and by others still to that of the Wood-ruff (*Asperula odorata*). Its colour varies considerably as the blossoms advance in age.

Fig. 1. Column. 2. Lip:—*magnified.*

TRIBE II. EPIDENDREÆ.

Pollen cohering in definite waxy masses (pollinia), with the cellulose web cohering in elastic pulvereous caudicles often replicate,—proper diaphanous gland none. Anther terminal, operculate.—Epiphytal or terrestrial plants, often caulescent, sometimes incrassated at the bases of the leaves or stems, rarely with fleshy lobed roots. Lindl.

7. EPIDENDRUM, *Linn.*

Sepals patent, nearly equal. *Petals* equalling the sepals or narrower, rarely wider, patent or reflexed. *Lip* connate, wholly or in part, with the margins of the column, the *limb* entire or divided, the *disc* often furnished with a callosity, ribbed or tuberculated, sometimes prolonged into a *spur* adnate with the ovary and forming a bag. *Column* elongated; *clinandrium* margined, often fimbriated. *Anther* fleshy, 2–4-celled. *Pollen-masses* 3, annexed to as many *caudicula*, which are folded upon them.—*Epiphytal* Herbs (*American*), *with the stem sometimes pseudo-bulbous at the apex or base, somtimes elongated and leafy at the apex.* Flowers *spicate, racemose, corymbose or paniculate, terminal or lateral. Lindl.*

The name given to this genus by Linnæus is derived from ἔπι, *upon*, and δένδρον, a *tree*, the species being usually found growing on the branches of trees.

This is the most numerous genus of Epiphytal Orchidaceæ with which we are acquainted. There are upwards of 150 noted in the various botanical authorities, some of which have been long in cultivation, *E. fragrans* having been introduced as far back as 1778. It is a fine genus, and very desirable both for the beauty of some of the species and for the delicate perfume which many of them emit, although it must be confessed that several of them are of the too frequently predominant colours, light green, pale yellow, &c. The several plants of this genus are more interesting from the variety of the formation of the flowers than from the brilliancy of their colours, with the exception of *vitellinum.* The delicate pencilling on the lips of *cepiforme*, *calocheilum*, and *Grahami*, is beautiful, but they will not bear comparison with many others, such as *verrucosum*, with its rich rose-coloured sepals and petals, and still darker labellum, added to its delicate fragrance; *radicans*, with its dense cluster of orange and yellow flowers; *macrocheilum* var. *roseum*, with its flat, light rose-coloured lip, and dark purple sepals and petals; *Schomburgkii*, with its showy cluster of deep rich red, large flowers, tinged with yellow in the centre; *phœniceum*, with its dark purplish-green sepals and petals relieved by the light rose-coloured labellum, veined with crimson; and *bicornutum*, not inferior, though of a totally different aspect from the preceding, having large and strikingly beautiful pure white blossoms, with a rich yellow lip spotted with pink, and an agreeable fragrance. To these may be added *aurantiacum*, *cinnabarinum*, *coriaceum*, *polyánthum*, and *Skinneri*. There are many other species very desirable for a collection, for, although not exhibiting flowers of brilliant colours, still their fragrance is no slight recommendation, as *ciliare*, *dipus*, *comosum*, *odoratissimum*, *Pastoris*, *selligerum*, &c.

The genus *Epidendrum* has been divided into two classes, those which produce pseudo-bulbs, and those producing slender stems: it has also been recently further divided, by Professor Lindley, into several sections. Most of the species of this genus will thrive best when attached to blocks of wood, and for *E. Parkinsonianum* and *aloifolium* this treatment is absolutely necessary, because they are pendulous-growing species, though the former is said to have been found amongst rocks and loose stones. They require a good strong moist heat, with a liberal supply of water while growing, and a season of rest, during which they must be kept as dry as safety will admit, not giving a greater supply than is sufficient to prevent the pseudo-bulbs from shrivelling; the temperature of the house should be low during this period, otherwise the roots, while in a dormant state, will probably be destroyed. When they are grown on blocks, they are far less liable to be damaged by over-moisture, as in that position the wet cannot remain for any length of time on the roots. When cultivated in pots, they should be planted in turfy peat and

Sphagnum broken up, with a good mixture of potsherds or charcoal, well drained. With this treatment they will thrive and flower abundantly. They also succeed if grown in a pit with a *slight* bottom heat, in a moist atmosphere and protected from the sun, but in this situation they should not be allowed to remain to an advanced period of the year, or the shoots will be very liable to damp off before they become properly matured. *E. vitellinum* was discovered by Mr. Hartweg, at an elevation of 9,000 feet, and, therefore, will thrive best in a low temperature.

1. EPIDENDRUM PARKINSONIANUM, *Hook.*

Mr. Parkinson's Epidendrum.

PLATE XIV.

Stem branched, sparingly leafy; lower leaves linear-lanceolate, rather obtuse, very thick, uppermost one coriaceous, very long and much attenuated, carinate at the base above, closely complicate; flowers 3–6 from the superior axil, supported by a long acuminated spatha; petals and sepals alike, lanceolate, acuminate, lateral lobes of the lip large, semicordate, somewhat jagged, the intermediate one linear-acuminate.

EPIDENDRUM Parkinsonianum, *Hook. Bot. Mag.* t. 3778 (Feb. 1840).

EPIDENDRUM falcatum, *Lindl. in Tayl. Ann. of Nat. Hist.* (Feb. 1840).

Sent to the Woburn Collection in 1838, from Mexico, by the late John Parkinson, Esq., F.L.S., Her Majesty's Consul-general there, a gentleman who was unwearied in his exertions to introduce Mexican plants to our Gardens, and whose name I therefore trust this remarkable species will be allowed to continue to bear, although it received another name at the same time, and the claim to priority may be considered equal.

Fig. 1. Column. 2. Anther-case. 3. Pollen:—*magnified.*

2. EPIDENDRUM CEPIFORME, *Hook.*

Onion Epidendrum.

PLATE XV.

Pseudo-bulbs globose, smooth, diphyllous; leaves linear-ligulate, rather thick; panicle large, ample, spreading; petals and sepals uniform, patent, spathulate, acute; lip free, 3-lobed; lateral lobes oblong, incurved, including the column, the middle cordate, rather acute.

EPIDENDRUM cepiforme, *Hook. Bot. Mag.* t. 3765.

Another Orchideous plant, for the discovery of which in Mexico we are indebted to Mr. Parkinson, who sent the singular pseudo-bulbs to the late Duke of Bedford in 1838. The flowers are not showy, but what they lack in size and colour is compensated by the greater number borne upon a panicle three feet in length (including the peduncle).

Fig. I. Column and lip. 2. Lip:—*magnified.*

3. EPIDENDRUM CALOCHEILUM, *Hook.*

Beautiful-lipped Epidendrum.

PLATE XVI.

Pseudo-bulbs ovato-oblong, diphyllous at the apex; leaves ensiform, obtuse, coriaceous, obsoletely striated, shorter than the tall many-flowered panicle; sepals and petals linear-oblong, spathulate, uniform, very patent;

free, suborbicular, deeply 3-lobed, keeled at the base, lateral lobes broadly ovate, intermediate one very broad, streaked with lines, the margin waved and crisped; column with a blunt wing on each side above.

Epidendrum calocheilum, *Hook. Bot. Mag.* t. 3898.

Introduced from Guatemala to the Woburn collection by Mr. Skinner in 1839. The dark red lines on the white lip of this species add much to its prettiness.

Fig. 1. Column. 2. Lip. 3. Pollen-masses:—*magnified.*

4. EPIDENDRUM GRAHAMI, *Hook.*

Dr. Graham's Epidendrum.

Plate XVII.

Pseudo-bulbs ovate, diphyllous; scape terminal; raceme many-flowered; perianth patent, sepals broadly lanceolate; petals spathulate; lip free, three-lobed, with two elongated lamellæ at the base, lateral segments ovate, acute, intermediate one rotundate, crisped; column with a blunt tooth on each side at the apex, anther-case deeply furrowed.

Epidendrum Grahami, *Hook. Bot. Mag.* t. 3885.

A Mexican species, drawn in 1840 from the collection of the Edinburgh Botanic Garden, and named in compliment to the late excellent Professor of Botany of the University of that place.

Fig. 1. Lip. 2. Column.

5. EPIDENDRUM MACROCHEILUM, *Hook.*

Large-lipped Epidendrum.

Plate XVIII.

Pseudo-bulbs ovate, wrinkled, diphyllous; leaves linear-oblong, coriaceous, rather obtuse; sepals and petals obovato-lanceolate, patent, their apices incurved; lip free, three-lobed, lateral lobes ovate, acute, enclosing the column, intermediate one very large with a callous disc, the side ones reflexed; column wingless.

Epidendrum macrocheilum, *Hook. Bot. Mag.* t. 3534.

Introduced from Mexico by Charles Horsfall, Esq., of Everton, Liverpool, in whose collection it flowered in 1836. This and the two preceding species belong to the *Encyclia* group of *Epidendrum,* having the column free, not united with the lip, and the three species have much affinity with each other; but the characters seem to be sufficiently marked and constant.

Fig. 1. Lip. 2. Column. 3 and 4. Anther case and pollen-masses:—*magnified.*

6. EPIDENDRUM VITELLINUM, *Lindl.*

Yolk-of-Egg Epidendrum.

Plate XIX.

Pseudo-bulbs ovate, acuminate, diphyllous; leaves oblong-lingulate, acute, sheathing at the base, shorter than the erect, terminal, many-flowered raceme; sepals and petals ovato-lanceolate, acute, subequal, patulous; lip linear, narrowed below, abruptly acute, callous at the base and bi-foveolate, nearly free.

Epidendrum vitellinum, *Lindl. Gen. et Sp. Orchid.* p. 97. *Bot. Reg.* 1840, t. 35. *Hook. Bot. Mag.* t. 4107.

Excellent pseudo-bulbs of this highly ornamental species of *Epidendrum* were received from Robert Smith, Esq., of Oaxaca, which blossomed at the Royal Gardens of Kew in November, 1843. Karwinski and Hartweg had previously gathered it in the same country, the latter on the Cumbre of Tetontepeque, at an elevation of 9,000 feet above the level of the sea.

Fig. 1. Column and Lip. 2 and 3. Pollen-masses.

8. SCHOMBURGKIA, *Lindl.*

Sepals and *Petals* uniform, patent, entirely free, equal at the base. *Lip* different in form, membranaceous, three-lobed, cucullate, at the base united with the margin of the column, tumid above the base (and there hollow beneath); *veins* lamellated. *Column* margined. *Pollen masses* eight.—Rootstock *creeping, naked, annulate, bearing* pseudo-bulbs. Leaves *coriaceous.* Scapes *terminal, vaginate.* Bracteas *spathaceous.* Flowers *showy, racemose, crowded. Lindl.*

The present subject has been long known as the "*Spread-Eagle,*" and first flowered in the Orchideous house of Thos. Brocklehurst, Esq., at the Fence, Macclesfield. The flowers are of a pale orange-red, the labellum is white, slightly tinged with pink and a few light yellow streaks, the flower-stem is about two feet long. *S. tibicinis,* the Cow-horn Orchis, is a much finer species: it derives its specific name from the shape and size of the pseudo-bulbs, as well as from their being used by the natives, when they become hollow, to be blown through like horns. The flowers are near two inches and a half wide, of a rich chocolate colour, the labellum is white and rose colour, and the stem is eight or nine feet long. *S. undulata* produces a flower-stem of seven to eight feet long, somewhat resembling *crispa,* with lively purple-coloured flowers. This species was discovered by Linden, growing on rocks at an elevation of 2,400 feet, it will, therefore, require a low temperature and a long period of rest to cause it to flower.

This genus is well worth cultivating, and succeeds best when attached to strong blocks of wood: the species like a warm humid atmosphere while growing, but require long rest and a low temperature to induce them to flower. We grow them well with this treatment, and *tibicinis* has perfected its tubers sixteen inches long.

1. SCHOMBURGKIA MARGINATA, *Lindl.*

(Var. petals and sepals immarginate).

Margined Schomburgkii.

Plate XX.

Petals and sepals waved, obtuse, middle lobe of the lip subrotund, acute. *Lindl.*

Schomburgkia marginata, *Lindl. Sert. Orchid.* t. 10 (in text) and t. 13.

Var. sepals and petals with the margins of the same colour. (Tab. nostr. XX.)

This fine plant received its generic name in compliment to the distinguished naturalist and traveller, Sir Robert Henry Schomburgk, who was engaged for many years in exploring various parts of British Guiana. There he detected the present species. Our figure, however, was taken from a Surinam specimen, which flowered in the stove of Thomas Brocklehurst, Esq., of the Fence, Macclesfield, in 1838. It proves to be a variety of the species originally described by Dr. Lindley, wanting the pale margin round the sepals and petals.

Fig. 1. Column. 2. Lip:—*magnified.*

9. BRASSAVOLA, *Br.*

Sepals and *petals* nearly equal, free, acuminate. *Lip* cucullate, entire, enclosing the *column. Column* margined, clavate; *stigma* infundibuliform; *clinandrium* tridentate at the back. *Pollen-masses* eight, nearly equal, in some instances other small ones accompany them. *Anther* four-celled, the *partitions* margined, the *cells* semi-partite.—*Caulescent epiphytal* Herbs, *with one (or more)* leaf *at the apex, which is semi-cylindrical, fleshy, often furrowed, subulate at the point.* Flowers *terminal, large, showy. Lindl.*

This genus is called after *Antonio Musa Brassavola,* a Venetian noble and botanist. It is by no means an extensive one, not more than twelve species being noted. There is not that variety of colours in this genus which others possess, the flowers being mostly yellowish green and white. *B. nodosa,* unlike its congeners, forms a cluster of flowers at the end of a short flower-stem; they are devoid of beauty, being of a lightish green hue, without any variation whatever, except a slight alteration of tint in the labellum; they have, however, the advantage of emitting a very delicate and pleasing perfume. *B. glauca* is by far the finest species, and although the colour of the sepals and petals is not calculated to render it attractive, still the size and delicate white of the labellum, with its deep purple blotch and its fine aromatic perfume, cannot fail to make it an object of interest. It is difficult to be flowered, but Mr. Fortune has ascertained that by destroying or keeping back the leaf-bud that forms at the base of every flower-bud, the latter may be induced to expand. This plant grows luxuriantly on a block of wood. *B. cucullata* is also a fine species, the flowers are solitary, of a pure white colour, with a delicate perfume.

The several species of this genus succeed better on blocks of wood or in baskets than in pots: if they are grown in pots they require to have the turfy peat and Sphagnum well mixed with potsherds or charcoal, so as to ensure a thorough drainage, which is indispensable They luxuriate in a hot moist atmosphere, with a liberal supply of water, and occasional light syringeing over head while growing, after which they must be kept dry and cool; with such treatment they flower profusely. A plant of *B. cucullata,* suspended in a wire basket and measuring near three feet in diameter, with from thirty to forty expanded flowers,is by no means an uninteresting object.

1. BRASSAVOLA NODOSA, *Lindl.*

Fragrant Brassavola.

PLATE XXI.

Lip cordato-acuminate, narrow and involute at the base, sepals and petals as long as the lip, linear, acuminate, lateral teeth of the column entire, intermediate one bi- tridentate.

BRASSAVOLA nodosa, *Lindl. Gen. et Sp. Orchid. Hook. Bot. Mag.* t. 3229.

EPIDENDRUM nodosum, *Linn. Sp. Pl.* p. 1350. *Jacq. Amer.* p. 226. t. 140.

CYMBIDIUM nodosum, *Sw. Nov. Act. Ups.* vol. vi. p. 73.

VISCUM delphinii flore minus, &c, *Sloane, Jam.* vol. i. p. 251. t. 121. f. 3.

A Jamaica plant, not ill figured in Sloane's History; and far from uncommon in our collections. The flowers are delicate and fragrant.

Fig. 1. Lip. 2 and 3. Column. 3, 4, and 5. Anther-cases and pollen-masses :—*magnified.*

2. BRASSAVOLA GLAUCA, *Lindl.*

Glaucous Brassavola.

PLATE XXII.

Leaves coriaceous, oblong, obtuse, nearly glaucous; spatha single-flowered; sepals and petals linear-lanceolate, obtuse, herbaceous; lip nearly sessile, roundish, acute, the margin lobed; clinandrium toothed, the dorsal tooth glandular at the apex. *Lindl.*

BRASSAVOLA glauca, *Lindl. Bot. Reg.* 1839, *Misc.* n. 67. and 1840, t. 44. *Batem. Orchid. Mex. et Guatem.* t. 16.

This has a very different habit from the other Brassavolas, a creeping caudex, lateral branches, scarcely to be called pseudo-bulbs, each bearing one sheathed broad leaf, and two large flowers, more resembling those of some *Cattleya* than *Brassavola.* These blossoms are fragrant. The species was detected both by Mr. Henchman and Mr. Hartweg in Mexico, and by Mr. Skinner in Guatemala. From a plant sent by the latter gentleman to Woburn, our figure was made in February, 1843.

Fig. 1. Column. 2. Anther-case. 3. Pollen-masses :—*magnified.*

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10. LÆLIA, *Lindl.*

Sepals spreading, lanceolate, equal. *Petals* larger, slightly different, spreading. *Lip* posticous, three-parted, lamellate, wrapped round the column. *Column* apterous, fleshy, furrowed in front. *Pollen-masses* eight, with four elastic *caudicles.*—*Epiphytal* Herbs, *with a pseudo-bulbiferous* rootstock. Leaves *fleshy.* Scapes *terminal, few- or many-flowered, odorous. Lindl.*

This splendid genus has been named by Dr. Lindley, after *Lælia,* a vestal virgin.

There are about twenty species, all most desirable plants and well worth cultivating: no collection ought to be without them. The flowers are generally of various shades of rose-colour, enriched with rich deep velvety pink, with the exception of *L. virens,* which is yellowish green and of no great interest. The most splendid of all the species is certainly *L. superbiens.* Mr. Skinner, speaking of this plant, says, "*Saw you ever anything like this? (!!!) This most magnificent of all plants I have sent several times: it is decidedly an* Epidendrum, *but I suspect it will get a new title in Europe; it flowers in November, and, in some instances, bears from eighteen to twenty flowers on stems from nine to twelve feet long. Chantla, its native habitat, is very cold; in fact, I suspect it will require only greenhouse warmth; its habitat in Costa Rica is* 68° *to* 70° Fahr., *but Chantilly is* 55° *to* 65° *generally.*" The flowers of *L. anceps* are delicate and beautiful, the sepals and petals have a purplish shade, and with the deep purplish labellum enlivened with rich yellow, gently waving at the end of a slender flower-stem of from three to four feet long, they form a splendid sight. *L. autumnalis,* though somewhat inferior in colour, still, from its more profuse flowering, may be considered its equal, bearing in a strong plant from twenty to thirty flowers on a stem, while *anceps* does not produce more than from three to five. *L. furfuracea* is inferior to the others in hue, and slenderer in its habit than *autumnalis,* to which, however, it is allied. *L. peduncularis* differs in colour from the other species, being of a light delicate purple: the labellum is slightly tinged with yellow, having a deep purple spot in it: the flower-stem seldom exceeds a foot in length. We cannot omit to notice other species of decided importance in a collection: *L. cinnabarina*, with its deep red orange flowers; *L. acuminata*, with its delicate blush sepals and petals, with the centre of the labellum of a rich purple brown, not unlike the flower of the beautiful *Dendrobium nobile*. We cannot pass over *L. majalis*, which, though difficult to keep and more difficult to flower, is worthy of a place in every collection.

All this genus, but *L. majalis*, are easily cultivated, and, with the exception of *L. albida*, thrive best on blocks of rough wood, either suspended from the roof of the house or placed in stands. They do not require a high temperature, being found at a considerable elevation, from 60° to 70° will be sufficient. They rejoice and thrive in a moist climate with occasional syringeings while growing; when at rest, which should be rather protracted, they should be kept dry and cool. Thus treated they will amply repay the trouble by an abundance of flowers, which, from their richness of colours, are particularly attractive and useful in enlivening the appearance of the Orchideous house.

1. LÆLIA SUPERBIENS, *Lindl.*

Gorgeous Lælia.

PLATE XXIII.

Scape very long, many-flowered; sepals and petals linear-oblong, obtuse, membranaceous, longer than the lip; middle lobe of the lip very obtuse, disc with five, large, subserrated lamellæ, truncated in front; crest of the anther two-eared; clinandrium toothed.

LÆLIA superbiens, *Lindl. Bot. Reg. Misc.* n. 87. *and under* Tab. 62. 1842. *Batem. Orchid. Guatem. et Mex.* t. 38. *Hook. Bot. Mag.* t. 4090.

Drawn from the rich collection of Mrs. Wray of Oakfield, Cheltenham, in 1844, where it was most successfully cultivated in a cool stove. Almost the last plate of Mr. Bateman's splendid work on the Orchideæ of Mexico and Guatemala is devoted to the representation of this *Lælia*, which of all the family to which it belongs (and that is saying much), best deserves the name of *superbiens*. It was one of Mr. Skinner's many discoveries among the cooler districts of Guatemala, and he gives the following interesting account of it: "I first found," says Mr. Skinner, "the *Lælia superbiens* in the village of Sumpango, planted by the Indians in front of their doors. This was in 1839, afterwards (in November, 1840) I went in search of its true habitat, and, during an excursion of three days, detected it in the Barrancas (or gullies) of Sachmarachon, near the town of Comalapa, about twenty leagues due north of the city of Guatemala. Here it exists in immense quantities, the finest specimens growing out of the crevices of rocks, and sheltered from the north winds. Some of the plants had bulbs of the height of twenty-two inches, with flower-stems four yards long, and bearing upwards of twenty flowers. On the morning on which I made this excursion (Nov. 27), when I reached the town of Comalapa, the ground was covered with hoar frost: the *Lælias*, however, as has been already mentioned, were usually screened from the north, and where this was not the case the plants had a stunted appearance."

2. LÆLIA ANCEPS, *Lindl.*

Two-edged Lælia.

Plate XXIV.

Leaves two or solitary, lanceolate; scape ancipitate, two or three-flowered, clothed with carinate scales; ovary viscid, disc of the lip linear, elevated, three-lobed at the apex; pseudo-bulbs ovate, distant, tetraquetrous. *Lindl.*

Lælia anceps, *Lindl. Bot. Reg.* t. 1751. *Hook. Bot. Mag.* t. 3804.

This is one of those beautiful purplish rose-coloured flowers, to which it is impossible for the pencil to do justice. The pseudo-bulbs were sent by Mr. Parkinson from Mexico to His Grace the late Duke of Bedford, in whose collection they flowered in great perfection. Native of Guatemala and Mexico.

Fig. 1. Pollen-masses :—*magnified.*

3. LÆLIA FURFURACEA, *Lindl.*

Scurfy-stalked Lælia.

Plate XXV.

Pseudo-bulbs ovate, striated, submonophyllous; leaves narrow-oblong, erect, acute, much shorter than the erect one-flowered (?) scape; bracteas oblong, membranaceous, acute; sepals lanceolate, acuminate, very patent; petals subrhomboid, lanceolate, waved, somewhat lobed, the lateral lobes of the three-lobed, bilamellate lip erect, rounded, truncate, the intermediate one oblong, revolute; ovary furfuraceous with black glandules.

Lælia furfuracea, *Lindl. Bot. Reg.* 1839. t. 26. *Hook. Bot. Mag.* t. 3810.

Drawn from the Woburn Gardens, where plants were received by the noble owner from Mexico, through Mr. Parkinson. "It is," as Professor Lindley observes, "very like *L. autumnalis*; but its pseudo-bulbs are more ovate, (in our *old* pseudo-bulbs very deeply) furrowed; the leaves are solitary or in pairs, not in twos or threes, they are erect and straight, not spreading and curved; the flowers have little or no smell, the petals are so as to appear lobed, and they are distinctly rhomboidal, and, finally, the ovary is closely covered with black mealy glands. It should seem, moreover, that the scape does not bear more than one flower, instead of several."

Fig. 1. Column. 2 and 3. Pollen-masses :—*magnified.*

4. LÆLIA AUTUMNALIS, *Lindl.*

Autumnal Lælia.

Plate XXVI.

Pseudo-bulbs ovate, terete, ribbed, attenuated and two or three-leaved at the apex; leaves oblong-linear, very patent, much shorter than the scape; scape terete, about six-flowered at the apex; bracteas oblong, membranaceous, acute; sepals lanceolate, acuminate, very patent; petals oblong-lanceolate, waved, lateral lobes of the three-lobed bilamellate lip erect, rounded, truncate, intermediate one oblong-lanceolate, reflexed at the apex, ovary glabrous. *Lindl.*

Lælia autumnalis, *Lindl. Gen. et Sp. Orchid.* p. 115. *Batem. Orchid. Mex. et Guatem.* t. 9. *Lindl. Bot. Reg.* 1839. t. 27. *Hook. Bot. Mag.* t. 3817.

Similar as this may appear at first sight to *Lælia anceps,* it is nevertheless perfectly distinct in its pseudo-bulbs, scapes, and flowers, as well as in its agreeable perfume. Our specimen here figured was from the Woburn collection, to which the plants were sent by Mr. Parkinson from Mexico, in 1838.

Fig. 1. Column. 2 and 3. Pollen masses:—*magnified.*

5. LÆLIA PEDUNCULARIS, *Sw.*

Pedunculated Lælia.

Plate XXVII.

Pseudo-bulbs ovate, compressed; leaf oblong, obtuse, shorter than the rounded, sheathed scape; corymb about four-flowered; bracteas many times shorter than the peduncle; sepals lanceolate, obtuse, shorter than the peduncle; petals ovato-elliptical, obtuse, nearly plane, lateral lobes of the lip roundish, many times shorter than the intermediate one, which is oblong, rounded at the apex, waved, furnished with two elevated lines.

Lælia peduncularis, *Lindl. Bot. Reg.* 1842. *Misc.* p. 9. *Hook. Bot. Mag.* t. 4099.

This species is among the rich collection of Woburn, presented by Her Majesty to the Royal Gardens of Kew: it had been sent by Mr. Skinner from Guatemala. It flowers in the autumn.

Fig. 1. Lip. 2. Column:—*magnified.*

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11. CATTLEYA, *Lindl.*

Sepals membranaceous or fleshy, patent, equal. *Petals* generally larger than the sepals. *Lip* cucullate, sheathing the column, three-lobed or undivided. *Column* clavate, elongated, semi-terete, margined, articulated to the lip. *Anther* fleshy, four-celled, with the margins of the septa membranaceous. *Pollen-masses* four, with as many replicate *caudicles.—Epiphytous* (*American*) Herbs, *pseudo-bulbose.* Leaves *solitary or binate, coriaceous.* Flowers *terminal, very showy, often bursting from a large spatha. Lindl.*

This genus is indebted for its name to the late *William Cattley,* Esq., of Barnet, one of the earliest growers of Orchideous plants in England, in compliment to whom Dr. Lindley has thus called it.

This is probably the most beautiful and desirable genus of Orchideous plants which adorn our stoves. The species are highly ornamental from their rich and gorgeous colours, and their velvety appearance: the flowers are of long duration, particularly if kept in a cool and dry atmosphere; and the plants are of easy culture: all these are valuable attributes. The genus is rather extensive, there being upwards of twenty species noted, amongst which very few are of an inferior character. It is, indeed, a matter of some difficulty to determine, amongst so many splendid individuals, which is the most deserving of pre-eminence. *C. labiata* and *Mossiæ* produce the largest flowers, and it is not easy to say whether the rich deep purple of *labiata,* contrasted with the delicate rosy lilac of the petals, or the almost dazzling brilliancy of the labellum of *Mossiæ,* relieved by its broad pale and delicate rose-coloured sepals and petals, is most pleasing to the eye. The flowers of *C. superba* are a deep rose colour: its labellum is somewhat differently shaped from most of the other species, and the perfume is particularly powerful in the evening. The flowers of *C. crispa* are of a totally different nature: the pure white of the undulated sepals and petals, contrasted with the deep rich purple of the labellum, make it certainly one of the most splendid acquisitions and attractions in an Orchideous house. In *C. guttata* and *citrina* we have a still greater variety of colour, the green and brownish-red sepals and petals spotted with a darker colour, and the rose-coloured labellum of the former, when judiciously placed on the stage, form a strong contrast with the rich deep yellow colour of the latter. We cannot pass over some others of this genus without bestowing a few remarks on their perfections. The intense yet soft rose-colour of *C. Skinneri*; the large, dark purple, velvety labellum of *C. labiata* var. *atropurpurea*; the delicate rosy crimson of the sepals and petals, with the deep purple labellum edged with pure white, of *C. marginata*; the superb dark purple blotching of the sepals and petals on a greenish-brown ground, with the deep pink labellum of *C. Aclandiæ*; the olive-green sepals and petals variously mottled and blotched, the whitish labellum, beautifully granulated and streaked with orange and crimson, of *C. granulosa*, render all these highly valuable additions to the cultivator.

The several species are easily raised. Many growers are in the habit of keeping the plants in too hot and humid an atmosphere: others equally err in giving too much water at the roots, particularly when they are in a dormant state. This treatment causes the plants to grow weak and delicate, in which state they are unable to produce their flowers. To avoid the inevitable destruction of the roots by over-moisture while dormant, the plants should be placed high in the pots, or, what we conceive preferable, they should be grown on large blocks of wood: we have nearly one hundred plants of this genus thus treated, which grow luxuriantly and flower profusely. If kept in pots, the usual turfy peat should be well drained, the temperature low, and the atmosphere moist: while the plants are growing, a season of rest is requisite, during which they should be dry and cool. The temperature at Chatsworth is from 70° to 75°, and in winter from 60° to 65°.

1. CATTLEYA LABIATA, *Lindl.*

Crimson-lipped Cattleya.

Plate XXVIII.

Pseudo-bulbs furrowed, sepals oblong-lanceolate, petals broadly-elliptical, waved; lamina of the obovate, obtuse, entire lip wholly of a deep crimson colour. *Lindl.*

Cattleya labiata, *Lindl. Coll. Bot.* t. 33. *Hook. Exot. Fl.* t. 157. *Lindl. Gen. et Sp. Orchid.* p. 166. *Bot. Reg.* t. 1859. *Hook. Bot. Mag.* t. 3998.

One of the best known and most beautiful of Orchideous Epiphytes in our collections. Its native country is the Spanish Main and Trinidad.

2. CATTLEYA MOSSIÆ, *Hook.*

Mrs. Moss's superb Epidendrum.

Plate XXIX.

Stem elongated, branched, pseudo-bulbiferous; pseudo-bulbs elongated, oblong, sulcated; flowers very large and showy, sepals lanceolate, petals elliptical-ovate, unguiculate, the margins obliquely crisped, lip very broad, obovate, yellow within, obliquely streaked with red, claw rolled in and meeting with a sharp upper edge, the lamina two-lobed, elegantly crisped and crenulate.

Cattleya Mossiæ, *Hook. Bot. Mag.* t. 3669.

Cattleya labiata, β., *Lindl. Bot. Reg.* 1840. t. 58.

This bears the largest flowers of the superb genus *Cattleya*: we have measured one that was twenty-four inches in the circumference of its spreading perianth. Dr. Lindley, indeed, considers it a variety of

C. labiata, from which it differs principally in the lip being yellow, mottled with crimson, instead of blood-red: but it has as good claim to rank as a species as many of the tropical plants which are generally received as such.

3. CATTLEYA INTEGERRIMA, var. ANGUSTIFOLIA, *Grah.*

Narrow-leaved intermediate Cattleya.

PLATE XXX.

Leaves oblong, emarginate, equalling the pseudo-bulbs; sepals and petals linear-oblong, nearly equal, slightly waved and obtuse, lip three-lobed with several lamellæ fleshy and crested in the middle, lateral segments ovate, nearly plane, intermediate one crisped, rotundate, and toothed.

CATTLEYA intermedia, *Grah. in Bot. Mag.* t. 2851.

γ. *angustifolia*; leaves narrower, flowers pale rose-colour, with the middle lobe of the lip blood-coloured to the margin. (TAB. NOSTR. XXX.)

CATTLEYA intermedia, γ., *Hook. Bot. Mag.* t. 3711.

A native of Brazil, and drawn from a plant in the Royal Botanic Garden of Glasgow.

Fig. 1. Column. 2. Inside view of the anther-case. 3. Pollen-masses:—*magnified.*

4. CATTLEYA SUPERBA, *Schomb.*

Superb Cattleya.

PLATE XXXI.

Leaves ovato-oblong, obtuse, coriaceous, margined, shorter than the clavate pseudo-bulbs; sepals oblong, rather acute, petals lanceolate, acute, membranaceous, twice as wide as the sepals, lateral segments of the three-lobed cucullate lip acute, intermediate one transverse, plane, denticulate emarginate, slightly unguiculate, wrinkled at the base with elevated veins, and having two callosities near the base. *Lindl.*

CATTLEYA superba, *Schomb. in Lindl. Sert. Orchid.* t. 22. *Hook. Bot. Mag.* t. 4083.

CATTLEYA Schomburgkii, *Lodd. Cat. Orchid.* n. 434.

Discovered by Sir R. H. Schomburgk in British Guiana and introduced by him to our stoves in 1838. That distinguished traveller remarks that "in beauty, fragrance, and duration, it is not to be surpassed by any Orchideous plant, the odour in the morning and evening becoming too powerful for a confined place, and its splendid flowers last for two or three weeks."

5. CATTLEYA CRISPA, *Lindl.*

Crisped-flowered Cattleya.

PLATE XXXII.

Sepals narrow, obovato-lanceolate, acute; petals wider, oblong-lanceolate, waved, crisped; limb of the undivided lip ovate, acuminate, very much waved and crisped; pseudo-bulbs subcylindrical, angled; spatha large, foliaceous. *Lindl.*

Cattleya crispa, *Lindl. Bot. Reg.* t. 1172. *Gen. et Sp. Orchid.* p. 116. *Hook. Bot. Mag.* t. 3910.

Drawn at the Royal Gardens of Kew, where this truly handsome species flowers annually, and is rendered more conspicuous from the large deep blood-coloured spot contrasting with the pale waxy hue of the rest of the floral covering.

6. CATTLEYA GUTTATA; β. RUSSELLIANA, *Hook.*

Spotted Cattleya; Lord Edward Russell's var.

Plate XXXIII.

Perianth fleshy; sepals linear-lanceolate, obtuse; petals of the same form, a little wider, waved; lateral segments of the three-lobed lip ovate, obtuse, intermediate one cuneate, obcordate, the disc tuberculate; leaves concave; spatha obsolete. *Lindl.*

Cattleya guttata, *Lindl. Bot. Reg.* t. 1406.

β. *Russelliana*; tall flowers much larger, sepals and petals deep greenish. (Tab. nostr. XXXIII.)

Cattleya guttata; β. Russelliana, *Hook. Bot. Mag.* t. 3693.

This is a very beautiful variety of the original *C. guttata,* and was brought to the Woburn collection by Capt. Lord Edward Russell, R.N., from Brazil, in 1838. It is found in the Organ Mountains, and was cultivated in the Botanic Garden at Rio, whence his Lordship obtained it.

7. CATTLEYA CITRINA, *Lindl.*

Citron-flowered Cattleya.

Plate XXXIV.

Pseudo-bulbs ovate, two-leaved; leaves ligulato-lanceolate, acute, nerveless, glaucous; peduncle single-flowered; perianth fleshy, erect; sepals oblong-elliptical; petals elliptical, ovate; lip scarcely exceeding the perianth, longer than the column, three-lobed, with a middle elevated line, middle lobe ovate, acute, waved.

Cattleya citrina, *Lindl. Gen. et Sp. Orchid.* p. 117. *Hook. Bot. Mag.* t. 3742.

Sobralia citrina, *Llave, Nov. Veg. Descr.* vol. ii. p. 21.

"Corticoatzoate coxochiti! *Hernand. Mex.* vol. i. p. 240."

Introduced from Oaxaca, Mexico, in 1838, to the collection at Woburn Abbey, where the species flowered for the first time in April, 1839. The pseudo-bulbs and foliage are remarkable for their very glaucous or sea-green hue, while the flower from its colour and the erect position, is not unlike, at first sight, a large state of *Tulipa sylvestris.* It is probably a plant held in esteem by the natives of the country where it grows; for they have given it a name, unpronounceable, we believe, by Europeans.

Fig. 1. Lip. 2. Column. 3. Pollen-masses:—*magnified.*

12. BARKERIA, *Knowles* and *Westm.*

Sepals and *petals* equal, free, membranaceous, very patent. *Lip* plane, entire, naked (cuneate with an apiculus), appressed to the column. *Column* petaloid. *Anther* four-celled, fleshy, with the margins of the septa membranaceous. *Pollen-masses* four, reflexed upon as many ligulate caudicula, connate in pairs. *Peduncles* long, slender, scaly, terminal, racemose above.—Flowers *large, conspicuous, drooping. Lindl.*

This genus was named in compliment to William Barker, Esq., of Birmingham, an extensive and very successful grower of Orchideæ, whose splendid collection has recently passed into the hands of J. J. Blandy, Esq., Highgrove, Reading.

We find but three species of this genus noted. The first imported was *B. elegans*, which appears to be a plant difficult to cultivate, and has become scarce; the flowers are of a light pink. *B. spectabilis* produces a lovely flower of a bright lilac colour, slightly blotched and veined with a darker colour; the labellum is nearly white, with a delicate tinge of yellow, and richly marked with small dark spots; it bears from ten to twelve drooping flowers on a stem not exceeding a foot long. This, like some others of the family of Orchideæ, has obtained a vernacular appellation, as *Peristeria elata*—"Il Spirito Santo;" *Lælia acuminata*—"Flor de Jesus;" *Cattleya Skinneri*—"Flor de San Sebastian;" *Barkeria spectabilis*—"Flor de Isabel." Their flowers are used by the natives to adorn the altars of their places of worship, as votive offerings. *B. spectabilis* has been most successfully cultivated by Mr. Brewster, gardener to Mrs. Wray near Cheltenham, who grows it in an open basket filled with moss, in a temperature not exceeding 65°, which in winter frequently fell below 40°. *B. Lindleyana* is not by any means so striking a flower as the preceding: the blossoms are not so large, or so well, or so variously marked; it is of a deep rose or pink colour; the end of the labellum is a dark, rich, rosy red, with a white blotch in the centre streaked with red; they are of long duration.

The different species will thrive well in moss, in baskets suspended, or attached to blocks; they delight in a low temperature with a free circulation of air, and a moist atmosphere while growing: when at rest, they must of course be kept dry and cool.

1. BARKERIA SPECTABILIS, *Batem.*

Showy Barkeria.

Plate XXXV.

Stems bearing two or three leaves; leaves oblong, coriaceous; raceme lax, many-flowered, terminal; sepals lanceolate, acuminate; petals ovato-lanceolate, acuminate; lip ovate, subunguiculate, longitudinally lamellated in the middle.

Barkeria spectabilis, *Batem. Orch. of Guatem. et Mex.* t. 33. *Hook. Bot. Mag.* t. 4094.

Assuredly one of the most delicate and lovely of all Orchideous plants: requiring a cool temperature for its cultivation, as may be expected from the locality of the species, the elevated districts of Guatemala.

Fig. 1. Column. 2. Pollen-masses:—*magnified.*

13. BROUGHTONIA, *Br.*

Sepals narrow, patent, lateral ones oblique at the base, connate with the base of the lip and decurrent. *Petals* wider. *Lip* undivided, ascending, adnate with the base of the column, decurrent in a linear honey-bearing spur, which is connate with the ovary. *Column* short, thick, dilated at the apex. *Anther* four-celled, the margins of the septa membranaceous. *Pollen-masses* four, with the caudicles replicate.—*Epiphytous* Herbs, *pseudo-bulbous*; leaves *fleshy*; scape *terminal*, *many-flowered*. *Lindl.*

This genus has been called after Mr. A. Broughton, botanist.

We find but two species noted. The flowers of *B. aurea* are larger than those of *coccinea*, and are of a yellowish-red colour, without any perfume. *B. coccinea* produces a very fine showy flower of a rich bright blood colour, shaded with a much deeper red, and lightened by the bright yellow on the inside of the labellum; it bears at the end of a flower-stem, from seven to ten inches long, about a dozen of its rich gaudy blossoms, which continue in perfection for a considerable time. The genus succeeds best when placed on a block of wood, to which the plants soon become steadily fastened, in a hot moist atmosphere, with a season of rest when the tubers become matured. They thrive in about 75° and require an occasional syringeing over-head. Thus treated they will flower well; but if not kept sufficiently warm and grown vigorously, they will scarcely throw up their flower stems.

1. BROUGHTONIA SANGUINEA, *Br.*

Scarlet Broughtonia.

PLATE XXXVI.

BROUGHTONIA sanguinea, *Br. Hort. Kew*, ed. 2. vol. v. p. 217. *Lindl. Gen. et Sp. Orchid. Hook. Bot. Mag.* t. 2536.

DENDROBIUM sanguineum, *Sw. Fl. Ind. Occ.* vol. iv. p. 1529.

Viscum radice bulbosa minus &c., *Sloane, Jam.* vol. i. p. 250. t. 121. f. 2.

β.; leaves longer, petals narrower. B. sanguinea, *Hook. Bot. Mag.* t. 3076.

A native of Jamaica, and introduced to the Royal Gardens of Kew so long ago as 1793.

Fig. 1. Column and spur: front and back view. 2. Pollen-masses in the anther-case:—*magnified.*

14. PHAJUS, *Lour.*

Sepals and *petals* nearly equal, patent, free. *Lip* often cucullate, adnate with the base of the column, spurred, entire or three-lobed, often carinated above, lamellose or crested. *Column* erect, continuous with the ovary, semi-terete, margined, elongate. *Anther* eight-celled. *Pollen-masses* eight, nearly equal.—*Terrestrial* Herbs (*Asiatic*) *caulescent or stemless*; leaves *broad, plicate*. Scapes *radical*. Flowers *showy*.

From *φαιος, brown*; so called by Loureiro, in consequence of the colour of the sepals of the original species.

We do not find more than five of this genus, all of which are very fine and showy plants. *P. grandifolius* is an old inhabitant of our stoves, having been in cultivation since the year 1778, under the name of *Bletia Tankervilleæ*. It is of easy culture, and flowers profusely. The inside of the sepals and petals is of a reddish brown or chocolate colour, veined with dark brown and a white streak up the centre; the outside is white; the labellum is white and rich yellow, streaked with dark red. The species require to be kept dry while in a dormant state, and should be planted in light sandy loam and peat, with plenty of drainage; and, while growing, they require a liberal supply of water: the addition of a little bottom heat at this period will greatly assist their growth. *P. bicolor*; the sepals and petals of this species are of an orange-brown colour inside, the outside yellowish-green; the labellum is yellow within, with a pinkish edge round the top. The flowers of *P. albus* are by far the most delicate of any, they are large and pure white, beautifully pencilled on the lip with purple red. It is a native of the Khoseea hills, where it was found by Dr. Wallich, who says, in his Plantæ Asiaticæ rariores, "*crescit super arboribus montis Chandaghiry Nepaliæ.*" It was also found by Mr. Gibson, in shady damp woods, at an elevation of between 2,000 and 3,000 feet, in the same locality, and therefore loves a cool temperature. It is a difficult plant to cultivate: the best mode of treatment will be found to be by keeping it, when dormant, in a dry, cool house, not exceeding 50°. When it commences to grow, it should be potted in well-drained, sandy peat, and placed in *moderate* heat, and as soon as it begins making its roots, it will require shade and a good supply of water, with an occasional syringeing over head. When the leaves turn yellow, the temperature should be reduced, and the plant kept dry. Mr. Paxton remarks: "*Rest, shade, water, and the total absence of all stimulus* appear absolutely necessary for its success, and to ensure its flowering." We have never observed this plant treated as an Epiphyte, and grown on a block of wood. *P. maculatus* derives its specific name from the foliage being spotted with white, the flower-stem grows about two feet high, producing twelve or fourteen flowers of a rich yellow; the edge of the labellum is dark orange. This species grows luxuriantly in a pit, potted in the same soil as the preceding. There is another species noted, *P. Wallichii,* the flowers of which are orange and yellow, tinged with pink on the inside of the sepals and petals, and a very light bluish colour on the outside. This is the most robust of the genus, and was found in dense shade in the fissures of the rocks, in decayed vegetable mould on the Khoseea hills.

1. PHAJUS GRANDIFOLIUS, *Lour.*

Large-leaved Phajus.

Plate XXXVII.

Stemless; leaves oblong-lanceolate; sepals and petals oblong-lanceolate, within of a different colour; lip oblong, cucullate, entire, crisped, emarginate at the apex; spur curved, emarginate. *Lindl.*

Phajus grandifolius, *Lour. Fl. Cochinch.* vol. ii. p. 529.

Limodorum Tankervilleæ, *Ait. Hort. Kew.* ed. 1. vol. iii. p. 302. tab. 12.

Bletia Tankervilleæ, *Br. Hort. Kew.* ed. 2. vol. v. p. 205. *Sims, Bot. Mag.* t. 1924.

This great ornament to our stoves is one of the earliest Exotic Orchideous plants introduced to our collections: viz., in the year 1778, by the late Dr. Fothergill. It is a stately species, and continues to enliven the months of March and April with its lovely blossoms.

2. PHAJUS BICOLOR, *Lindl.*

Two-coloured Phajus.

Plate XXXVIII.

Stemless; leaves broadly lanceolate, acuminate; sepals and petals (narrower) oblong-lanceolate, acuminate; lip cucullate, ventricose, entire; limb obtuse, with two plane lamellæ in the middle; spur subulato-cylindrical, curved, as long as the ovary.

Phajus bicolor, *Lindl. Gen. et Sp. Orchid.* p. 128. *Sert. Orchid.* t. 23. *Hook. Bot. Mag.* t. 4078.

This fine plant is a native of Ceylon, and is a free flowerer in the stove. We owe the specimen figured here to the kindness of Dillwyn Llewellyn, Esq., of Penllegare.

Fig. 1. Column and spur. 2 and 3. Pollen-masses. 4. Anther-case:—*magnified.*

3. PHAJUS ALBUS, *Lindl.*

White Phajus.

PLATE XXXIX.

Caulescent; leaves oblong-lanceolate, acute, glaucous beneath; sepals and petals oblong-lanceolate, acute, nearly equal; lip oblong, cucullate, denticulate, rounded at the apex; disc with five crests; spur nearly straight, emarginate; bracteas cucullate, herbaceous, persistent, imbricated, equal in length with the flowers.

PHAJUS albus, *Lindl. in Wall. Pl. Asiat. Rar.* vol. ii. t. 198. *Gen. et Sp. Orchid.* p. 128. *Bot. Reg.* 1838, t. 33. *Hook. Bot. Mag.* t. 3991.

This noble plant is stated by Dr. Wallich (to whom our stoves are indebted for the introduction) to be a native of trees on Mount Chandaghiry in Nepal, and in the neighbourhood of Sylhet. Our specimen here figured, however, (from the Royal Gardens of Kew,) differs from that represented by Dr. Wallich in the absence of a yellow disk to the lip.

Fig. 1. Column. 2. Lip. 3. Pollen-masses:—*magnified.*

4. PHAJUS MACULATUS, *Lindl.*

Spotted Phajus.

PLATE XL.

Caulescent; leaves ovato-lanceolate, acuminate, spotted; sepals and petals oblong, obtuse; segments of the three-lobed lip plicato-crenate at the apex, lateral ones rounded, intermediate one ovate, obtuse, much smaller; spur erect, oblong, obtuse.

PHAJUS maculatus, *Lindl. in Wall. Cat.* n. 3748. *Gen. et Sp. Orchid.* p. 127. *Hook. Bot. Mag.* t. 3960.

BLETIA Woodfordii, *Hook. Bot. Mag.* t. 2719.

β; leaves all green.

Native of the East Indies. Like some other yellow-flowered plants (some *Primulaceæ* for example) the bracteas and flowers become of a deep verdigris green in decay. Another circumstance worthy of notice is that if the flowers, or, indeed, any part of the plant, be chewed in the mouth, no taste whatever is perceived, nor any effect observed till after the lapse of several minutes, when a pungent heat is very sensibly produced upon the tongue and lips, similar to that experienced after chewing the acrid leaves of some of the *Aroideæ*.

Fig. 1. Lip. 2. Column. 3. Anther-case. 4. Pollen-masses:—*magnified.*

15. SOPHRONITES, *Lindl.*

Pollen-masses eight, parallel above and below; *caudicle* double, pulvereous; *gland* 0? *Anther* terminal, opercular, eight-celled, with a thick hinge. *Stigma* concave, *rostellum* obtuse. *Column* free, winged on each side at the apex, the wings entire, connivent upon the crest of the lip. *Lip* entire, cucullate, linguiform, connate at the base with the column, having in the middle a simple transverse crest. *Sepals* nearly equal, imbricated, free at the base.—*Epiphytal* Herbs *of Brazil, monophyllous, not bulbous;* racemes *axillary, spreading, few-flowered;* flowers *red. Lindl.*

Professor Lindley has named this genus from *σώφρων, modest.*

This is a genus of small and beautiful plants. The flowers of *S. grandiflora* are about two inches in diameter, of a rich cinnabar colour, shaded and tinged with orange and crimson, their centre is a light orange: they are of rather long duration, particularly if not kept in a moist atmosphere. *S. cernua*;—the flowers of this species are not so large as those of *S. grandiflora,* nor are the colours so bright. Those of *S. violacea* are of a violet or purplish tinge. All the species grow best on a small block of wood, suspended from the roof of the house; they do not require great heat or moisture, and should have two or three months' rest, during which period they should be kept dry and cool. They resemble a very diminutive *Cattleya* in appearance: *S. grandiflora* was called *Cattleya coccinea.*

1. SOPHRONITES GRANDIFLORA, *Lindl.*

Large-flowered Sophronites.

PLATE XLI.

Pseudo-bulbs oblong-cylindrical, younger ones spathaceous, bearing a single elliptical leaf; petals elliptic rotundate; sepals oblong-lanceolate, twice as small; lip (small) three-lobed, lateral lobes incurved, obtuse, intermediate one acuminate, nearly plane.

SOPHRONITES grandiflora, *Lindl. Sert. Orchid.* t. 5. f. 2. *Hook. Bot. Mag.* t. 3709.

CATTLEYA coccinea, *Lindl. Bot. Reg.* fol. 1191 (*in text*).

A lovely little plant, with large flowers in proportion to its size. Native of mountains in Brazil; detected by M. Descourlitz upon the high mountains that separate the district of Bananal from that of Ilha-grande, and by Mr. Gardner on the Organ Mountains.

Fig. 1. Side view of a lip. 2. Front view of ditto. 3. Side, and 4, front view of a column. 5. Anther-case. 6. Pollen-masses :—*magnified.*

TRIBE III. VANDEÆ, *Lindl.*

16. MAXILLARIA, *Ruiz et Pavon.*

(*Maxillaria* and *Lycaste,* Lindl.)

Perianth connivent, rarely patent. Lateral *sepals* connate with the produced base of the column. *Petals* resembling the sepals. *Lip* three-lobed, cucullate, sessile, articulated on the produced base of the column. *Column* semiterete, apterous. *Anther* subbilocular. *Pollen-masses* two, bipartible or entire; *caudicle* short, *gland* transverse.—*Epiphytal (American), pseudo-bulbous, stemless or caulescent* plants. Leaves *plaited or coriaceous.* Peduncles *radical, axillary or terminal, one or many-flowered. Lindl.*

Ruiz and Pavon have named this genus *Maxilla,* from the resemblance of the column and labellum to the jaws or *maxillæ* of an animal.

This genus has of late, by Professor Lindley, been divided into the following genera, *Bifrenaria, Colax, Lycaste, Paphinia, Promenæa, Scuticaria,* and *Warrea,* some of which are probably scarcely tenable.

M. Deppei, now *Lycaste Deppei*, has the sepals green, changing towards the extremities to a red, and spotted with purplish red; the petals are white, spotted and striped inside with crimson; the labellum is a deep orange, spotted and striped with crimson. *M. Harrisoniæ*; the sepals and petals are of a pale buff or cream colour, the labellum is light yellow and purple red, with veins of a darker colour. *M. aureo-fulva* has been referred to the genus *Bifrenaria*; the flowers are extremely showy and attractive, but we believe the species is not very common; they are about the size of *M. picta* when expanded, and are of a golden brown, running into a bright yellow at the end of the sepals and petals; the pseudo-bulbs are curiously marked with dark brown. *Lycaste fulvescens* has the sepals and petals of a pale tawny colour, with the labellum orange. In this numerous genus there are many insignificant species, which, in former days, might have been considered worth growing, but in the present advanced state of the cultivation of Orchidaceous plants, and the recent introductions of new and splendid species and genera, they cannot now be said to possess sufficient interest to be retained in an extensive collection. *Lycaste Skinneri* can scarcely be equalled in almost any genus for the peculiar delicacy of its white sepals, its blush and rosy petals, the velvety crimson of the labellum streaked with brilliant carmine; the flowers are six inches across, and have a delicate perfume; the plant is a profuse flowerer. *L. aromatica* (of which we have an imported variety called *L. Colmani*, with erect flower-stems, and the sepals and petals spotted with red, particularly near the base), is a valuable, though common species, a profuse flowerer, with a delicious perfume of cinnamon. *L. cruenta* is of a rich deep orange colour, with a crimson spot in the labellum. The Botanical Register states *M. Brocklehurstiana* to be one of the finest of the genus, with a flower-stem eighteen inches long, terminated by several rich crimson, brown-spotted flowers, more than two inches in diameter, and deliciously fragrant. The extensive subdivisions of this genus have robbed *Maxillaria* of some of its beauties, as *M. cristata, stapelioides, Steelii, cyanea*, &c. This genus, and the original members of it, thrive well in turfy peat, sphagnum, and potsherds or charcoal. The pots must be half filled with drainage, and the plants raised above the rim. They will thrive well in a warm damp atmosphere, and make fine plants, but without a period of rest, they cannot be expected to flower satisfactorily. While in a strong growing state, they require a liberal supply of water, with an occasional syringeing over head, and to be shaded from the sun. *M. Steelii*, now *Scuticaria Steelii*, thrives best on a block of wood, suspended from the roof of the house.

1. MAXILLARIA (LYCASTE) DEPPII, *Lodd.*

Mr. Deppe's Maxillaria.

Plate XLII.

Calyx patent; leaflets oblong-obtuse, spotted; corolla standing forward; lateral petals obovate (white); lip three-lobed (yellow), spotted with purple, lateral lobes incurved, intermediate one ovato-acuminate, waved, reflexed; scapes radical; pseudo-bulb ovate, compressed, three-leaved at the apex.

Maxillaria Deppii, *Lodd. Bot. Cab.* t. 1612. *Bot. Mag.* t. 3395.

A native of Xalappa in Mexico, where it was detected by Deppe, and introduced to our stoves by Messrs. Loddiges. It has now become deservedly common in our collections.

Fig. 1. Side view of the lip:—*natural size.* 2. Front view of the column:—*magnified.*

2. MAXILLARIA (LYCASTE) HARRISONIÆ, *Hook.*

Mrs. Harrison's Maxillaria.

Plate XLIII.

Leaves solitary, lanceolate, plaited; raceme two-flowered; perianth large, waxy, patent; lip veiny, deeply three-lobed, the lobes recurved, crisped with glandular hairs on the upper side, and having a large, orange-coloured, orbicular gland on the disk of the lip.

Dendrobium Harrisoniæ, *Hook. Ex. Fl.* t. 120.

Maxillaria Harrisoniæ, *Lindl. Bot. Reg.* t. 897. *Hook. Bot. Mag.* t. 2927.

Colax Harrisoniæ, *Spreng. Syst. Veget.* vol. iii. p. 727.

A very handsome species, justly named in compliment to Mrs. Arnold Harrison of Aigburth, Liverpool, through whose means it and many other rare Brazilian species were introduced to our collections. The noble blossoms have a faint smell resembling that of the Primrose.

Fig. 1. Front view of the lip :—*natural size.* 2 and 3. Pollen-masses :—*magnified.*

3. MAXILLARIA AUREO-FULVA, *Hook.*

Golden-brown Maxillaria.

Plate XLIV.

Pseudo-bulbs rotundato-ovate, three- or four-angled, wrinkled, monophyllous; leaf elliptical-oblong, striated, petiolate, acute; scape radical, longer than the leaf; flowers racemose; sepals oblong, acuminate, the lateral ones connate at the base so as to form an obtuse spur; lip resembling the petals.

Maxillaria aureo-fulva, *Hook. Bot. Mag.* t. 3629.

A graceful, rather small species, native of Rio, and imported by Mr. Allcard.

4. MAXILLARIA (LYCASTE) FULVESCENS, *Hook.*

Tawny-flowered Maxillaria.

Plate XLV.

Sepals lanceolate, the lateral ones falcate; petals of the same form, rather smaller; lip oblong, three-lobed, the lateral lobes small, acute, intermediate one ovato-obtuse, fimbriated; glandulose appendage at the base large, furrowed; herbaceous bractea shorter than the ovary.

Lycaste fulvescens, *Hook. Bot. Mag.* t. 4193.

Introduced by the late Rev. John Clowes, of Broughton Hall, Manchester, from the province of Coro, in Columbia. It is allied to *M.* (*Lycaste*) *gigantea,* but differs in the much smaller size of the flowers, and especially of the bracteas, in the beautifully fringed margin of the lower lip, to say nothing of the colour, here a rather pale yellow tawny, with an orange lip, in *L. gigantea* a greenish-brown, with a red-purple lip.

Fig. 1. Lip :—*magnified.*

17. HOULLETIA, *Lindl.*

Perianth patent; *sepals* free; *petals* rather smaller, clawed. *Lip* continuous with the base of the column, patent; *hypochilium* narrow, excavated, and, as it were, two-lipped at the base, at the apex on each side produced into a segment with an intermediate minute lobe; *metachilium* none; *epichilium* angular, dilated, jointed on the hypochilium. *Column* erect, arcuate, clavate, semi-terete, a little smaller than the lip. *Anther* two-celled, depressed. *Pollen-masses* two, cleft at the back; *caudicle* linear-lanceolate, elongated into an acute gland, not fixed upon it.—*Epiphytal, pseudo-bulbose* Herbs, *of equinoctial America, having the leaves solitary, plaited.* Scapes *radical, erect, racemose at the apex.* Flowers *showy, yellow-brown;* bracteas *small, and not spathaceous. Lindl.*

This genus derives its appellation from Houllet, a French gardener. We find but two species noted.

H. Brocklehurstiana has the sepals and petals rather concave, richly mottled on a brownish-red ground; the labellum is curiously formed, of a yellowish white colour, spotted and streaked with brown, and terminating in rich purple. The flower-stem springs from the base of the newly formed tubers, bearing six or seven flowers from three to four inches in diameter. Its natural habitat is on trees, but it appears to thrive well in a pot. *H. vittata*;—the flowers of this species are yellow, streaked with deep chocolate colour; the labellum is yellow streaked with orange. The best mode of growing the genus is in pots, well drained, and filled with turfy heath-mould, reduced sphagnum, and charcoal; they are rather vigorous growing plants, and should be freely watered, but, while dormant, they should be kept dry and cool.

1. HOULLETIA BROCKLEHURSTIANA, *Lindl.*

Mr. Brocklehurst's Houlletia.

PLATE XLVI.

Leaves on long petioles; raceme six-flowered; sepals oblong and, as well as the petals, rounded at the apex; segments of the hypochilium linear-lanceolate, reflexed; epichilium ovato-triangular subhastate with the interior angle, acuminate. *Lindl.*

HOULLETIA Brocklehurstiana, *Lindl. Sert. Orchid.* t. 41. *Hook. Bot. Mag.* t. 4072.

MAXILLARIA? Brocklehurstiana, *Lindl. Bot. Reg.* 1841, *Misc.* n. 27.

One of the finest among Orchidaceous plants, imported from Brazil by Mr. Wanklyn, of Crumpsall House, Manchester. A second species is the *H. vittata,* but it approaches very near to *Maxillaria.*

Fig. 1. Lip and Column:—*natural size.* 2. Upper portion of the column, with the anther thrown back, showing the pollen-masses. 3. Pollen-masses:—*magnified.*

18. BATEMANIA, *Lindl.*

Flowers ringent. *Sepals* patent, lateral ones clawed, equal at the base. *Petals* wider than the sepals, oblique at the base, adnate with the produced base of the column. *Lip* articulated upon the column, three-lobed, cucullate. *Column* semi-terete, elongated at the base; the clinandrium margined. *Anther* small, two-celled, membranaceous. *Pollen-masses* two, two-lobed at the back, the gland triangular, caudicle none. *Lindl.*

This genus was named by Professor Lindley in compliment to James Bateman, Esq., of Knypersley Hall, Cheshire.

B. Colleyi. There is not any other species noted; it is a native of Demerara, and received its specific appellation after Mr. Colley, who was employed by Mr. Bateman as a collector of Orchideæ. The flower-spike rises from the new shoot, and produces from six to twelve flowers; the sepals and petals are a purplish red terminating in green; the labellum is yellowish-white, blotched with dark red. It thrives well in turfy peat broken into small lumps, mixed with potsherds or charcoal.

1. BATEMANIA COLLEYI, *Lindl.*

Mr. Colley's Batemania.

PLATE XLVII.

BATEMANIA Colleyi, *Lindl. Bot. Reg.* t. 1714. *Hook. Bot. Mag.* t. 3818.

This plant, constituting the type of a new genus, was discovered by Mr. Colley, botanical collector for Mr. Bateman in British Guiana, and introduced by the latter gentleman to our stoves. The specimen from which our figure is made, was sent to the Royal Botanic Garden of Glasgow by Dr. Fraser of Demerara.

Fig. 1. Front view of the lip. 2. Upper, and 3, underside of an anther-case. 4. Pollen-masses. 5. Column, with the lower combined portion of the three sepals decurrent with the back:—*magnified.*

19. CYCNOCHES, *Lindl.*

Perianth spreading. *Lateral* sepals lanceolate, slightly connate at the base below the lip; upper one narrower. *Petals* broader, falcate, decurved. *Lip* free, ecalcarate, continuous with the column, lanceolate, entire, with the abrupt claw callous. *Column* elongated, arcuate, terete, club-shaped at the apex, with two falcate auricles at the sides of the clinandrium. *Anther* two-celled. *Pollen-masses* two, falcate at the back, subpedicellate; *caudicle* linear; *gland* very large.—*Habit of* Catasetum, *but racemes lateral. Lindl.*

Professor Lindley has named this genus from *κύκνος*, a *swan*, and *αύχήν*, the *neck*; from the resemblance which the column of the flower has to the neck of a Swan.

We do not find more than six species noted, and of these some cannot be said to be more than varieties. The flowers are generally very fragrant. Those of *C. Loddigesii*, when expanded, bear a strong resemblance to the general form and position of the neck and wings of a swan when majestically sailing on the water. The genus requires a strong heat and a moist atmosphere, with a liberal supply of water while growing. The water must be gradually withdrawn as they perfect their growth, and when dormant they should be kept cool and dry. They may be otherwise treated as the genus *Catasetum*, and will thrive well. *C. Loddigesii* will thrive well fastened on a block of wood, and suspended from the roof of the Orchideous house.

1. CYCNOCHES LODDIGESII, *Lindl.*

Mr. Loddiges' Cycnoches.

PLATE XLVIII.

Lip lanceolate, nearly plane, with the claw short, callous; column equalling the upper sepal in length.

CYCNOCHES Loddigesii, *Lindl. in Lodd. Bot. Cab.* t. 2000. *Hook. Bot. Mag.* t. 3855.

One of the most singular of Orchidaceous plants, a native of Guiana, and first introduced to our English stoves by Mr. Loddiges through his friend Mr. Lance. The blossoms are large and fragrant, but variable in the colour and spotting of the lip. Mr. Loddiges' plant has the lip with large purple spots on the disc: in our plant the spots are confined to the claw.

2. CYCNOCHES VENTRICOSUM, *Batem*; var. EGERTONIANUM.

Ventricose Cycnoches; Sir Francis Egerton's var.

PLATE XLIX.

Sepals and petals lanceolate, reflexed; lip entire, ventricose, acuminate, callous at the base; claw short; column arcuate, twice as short as the upper sepal. *Batem.*

CYCNOCHES ventricosum, *Batem. Orch. of Mex. and Guat.* t. 5.

Var. *Egertonianum*; sepals and petals ovato-lanceolate, reflexed; lip continuous with the column, obovate, incurved at the margin, radiated, with five finger-like appendages on each side; epichilium linear, membranaceous, scarcely longer than the lateral appendages. *Batem.* TAB. NOSTR. XLIX. *Lindl. Bot. Reg.* 1843. *Suppl.* 77, *with a wood-cut. Hook. Bot. Mag.* t. 4054.

CYCNOCHES Egertonianum, *Batem. Orch. of Mex. and Guatem.*

The very curious plant here represented is known to be a "sport" or monstrosity of *C. ventricosum* (see Bot. Mag. t. 4215), which, again, according to Dr. Lindley, may be considered a sport of *C. Loddigesii*, above represented. Mr. Bateman has indeed published a figure with a complete raceme of *C. ventricosum*, and a complete raceme of *C. Egertonianum* on the same plant.

20. CATASETUM, *Rich.*

(Including *Monacanthus* and *Myanthus*, Lindl.)

Perianth generally globose, sometimes spreading. *Sepals* and *petals* nearly equal. *Lip* thick, fleshy, naked, ventricose, or spreading and fimbriated, saccate under the base, obsoletely three-lobed. *Column* erect, apterous, free, cirrhose on each side at the apex. *Anther* subbilocular, truncated in front. *Pollen-masses* two, two-lobed or sulcated at the back; *caudicle* very large, naked, at length elastically contractile; *gland* cartilaginous, subquadrate. —*Terrestrial or epiphytal* Herbs, stems *short, fusiform, clothed with the remains of leaves.* Leaves *sheathing at the base, plicate.* Scapes *radical.* Flowers *showy, racemose, green, sometimes spotted with purple.*

From κάτω, *downward*, and *seta*, a *hair*, from the bristle-shaped appendages to the column, which point downwards.

This is rather a numerous genus, whose flowers are very curiously formed. We find upwards of thirty species noted. Professor Lindley has lately divided this genus into two sections, one of which has a plane lip, and answers to *Myanthus*; the other has a helmeted lip, answering to the original *Catasetum.* The sepals of *C. globiflorum* are mottled with purplish dingy brown; the petals are a pale green, spotted with brown; the labellum is light green, richly spotted with deep purple towards the margin, and dotted with red near the apex. *C. purum*; in this species there is little or no variety of colour; the flowers are a greenish yellow, produced on a spike about a foot long. *C. trifidum* belongs to the section *Myanthus*; it is a more showy flower than some others of the genus, and is yellowish-green, spotted with small red-brown spots. *Myanthus barbatus* is a very pretty and curious plant, and very liable to vary; the sepals and petals are narrow and green, blotched with dark purple; the labellum is white, spotted with small spots, and very beautifully fringed or bearded with white. The sports of this genus are rather puzzling: we have a plant which for two or three years flowered true *Myanthus barbatus*, it afterwards flowered

Monocanthus viridis, and has since continued so; the leaves of *Monocanthus longifolius*, are very long and narrow, the flowers are a bright orange, slightly bordered with violet, on a drooping raceme upwards of a foot long; this is by far the handsomest and most showy of the genus; *b. roseo-albus* is a curious and rather pretty species, the leaves are narrow, the flowers vary in colour to a yellowish green, lightly touched with dark rose, the labellum is tipped and banded with red, the fringes are long and dark pink or red.

All the plants of this genus are strong growers, and thrive best when exposed to the sun; Mr. Heuchman invariably found them so. They are very impatient of water, and if much syringed over head, while making the young shoots, they are apt to damp off; they should be kept cool and dry while torpid, gently forced into growth; when growing freely, kept in a moist heat, and when in full vigour of growth, should have a copious supply of water. The temperature, while growing, should not be less than 65° at night, nor above 80° during the day, with a moist atmosphere. In winter, when the plants are at rest, they should be kept dry, and the temperature not more than 60°. They may be grown in pots, and treated in point of materials as the genus *Stanhopea*, or grown on blocks of wood. We prefer the latter mode, the plants soon cover the blocks with their roots. This is the only genus ever found growing on pines. Most of the species emit a very powerful perfume.

1. CATASETUM GLOBIFLORUM, *Hook.*

Globe-flowered Catasetum.

Plate L.

Spike elongated, many-flowered; perianth globose; sepals and petals uniform, ovate, acute, concave, closely imbricated; lip hemispherical, globose; the mouth contracted, oblong, wider towards the apex, the base elevated, denticulate, enclosing the column; column short; bristles straight.

Catasetum globiflorum, *Hook. Bot. Mag.* t. 3942.

A very striking species of a very sportive genus, and together with the following (*C. purum*), characteristic of the original genus *Catasetum*. The present was received at the Glasnevin Botanic Garden from Brazil, by Mr. Moore, from Dr. Gogarty of Rio.

Fig. 1. Petals and Lip. 2. Column and setæ. 3. Pollen-masses:—*magnified.*

2. CATASETUM PURUM, *Nees.*

Spotless Catasetum.

Plate LI.

Spike many-flowered, sepals and petals oblong-lanceolate, concave, all soon deflexed, spotless; lip subglobose, with the mouth contracted, denticulate only at the sides.

Catasetum purum, *Nees, Pl. Hort. Med. Bonn.* (1824.) t. 1. *Bot. Mag.* t. 3388.

Catasetum inapertum, *Hook. Ex. Fl.* vol. iii. p. 213 (1826).

A Brazilian species introduced by Charles Horsfield, Esq.

Fig. 1. Flower on first expansion. 2. Flower with the sepals bent back, 3. Back view of the same. 4. Column, from which the anther-case (fig. 5) is removed. 6. Pollen-masses:—*all but fig.* 1–3, *magnified.*

3. CATASETUM (MONACANTHUS) LONGIFOLIUM, *Lindl.*

Long-leaved Catasetum.

Plate LII.

Leaves very long, grassy; raceme cylindrical, pendulous, many-flowered; sepals ovate, subrotund, applied to the back of the conformed petals; lip urceolar, from the back incurved, the limb truncate, apiculate, cereaceous, within glabrous, the margin fimbriated. *Lindl.*

Catasetum longifolium, *Lindl. in Bot. Reg. Misc.* 1829, n. 154. *Lindl. Sert. Orchid.* t. 31.

Monacanthus longifolius, *Hook. Bot. Mag.* t. 3819.

From the collection of Mr. Brocklehurst, of the Fence, Macclesfield, who received it from British Guiana, its native county; and where Sir Robert Schomburgk observes it grows on the Ela Palm, *Mauritia flexuosa.* This is remarkable in the genus for the absence of setæ to the column, for the orange or golden colour of the flowers, and the long grassy leaves.

Fig. 1. Column and lip. 2. Pollen-masses :—*magnified.*

4. CATASETUM (MONACANTHUS) ROSEO-ALBUM.

White and rose-coloured Catasetum.

Plate LIII.

Lip triangular, very acute, concavo-hemispherical (not ventricose), downy within, the margin at the base within with very long ciliæ.

Monacanthus roseo-albus, *Hook. Bot. Mag.* t. 3796.

Native of Para, in Brazil, whence the pseudo-bulbs were imported by Mr. Murray of the Glasgow Botanic Garden in 1839. It is assuredly among the prettiest of the genus. The delicate pale blossoms have the sepals and petals tipped with red and striped with red in the inside, while the lip is also tipped with red and fringed at the base with exceedingly long red ciliæ.

Fig. 1 .Flower. 2. Pollen-masses :—*magnified.*

5. CATASETUM (MYANTHUS) CRISTATUM, *Lindl.; β.* SPINIGERUM.

Crested-lipped Catasetum ; spine-bearing var.

Plate LIV.

Sepals patent, and, as well as the spreading petals, lanceolate; lip oblong, spreading, crested in the margin, and partially on the disk, with a copious fringe of long filamentous processes.

Catasetum cristatum, *Lindl. Bot. Reg.* t. 966.

β. spinigerum; lip at the base above with a solitary undivided spine. (Tab. nostr. LIV.)

Myanthus barbatus; *var.* labello albo, *Hook. Bot, Mag.* t. 3514. *Subvar.* labello roseo, M. barbatus, *Lindl. Bot. Reg.* 1778.

γ. spinosum; lip white with a tripartite spine at the base above, and at the apex a large toothed projecting spine.

Myanthus spinosus, *Hook. Bot. Mag.* t. 3802.

Experience and cultivation have proved that the *Catasetum*, *Myanthus*, and *Monacanthus*, are mere forms, or "sports" as gardeners call them, of one and the same genus. We may, I think, with equal certainty assert that the above synonyms belong to one and the same species, and all are inhabitants of trees in various parts of Brazil and Guiana. It is even doubtful what is the normal form of the labellum in *Catasetum*. Dr. Lindley remarks of this: "the importance of the peculiarity which exists in the labellum is manifested in a singular manner by a curious monster of this plant, which was observed on an individual in the Horticultural Society's Garden. Among flowers of the ordinary structure, two or three others were observed in which the labellum was precisely of the same nature as that of *Catasetum tridentatum*, that is to say, destitute of the crested appendages and perfectly galeate and naked."

Fig. 1. Column and lip. 2. Anther-case. 3 and 4. Pollen-masses :—*magnified.*

6. CATASETUM (MYANTHUS) TRIFIDUM, *Hook.*

Trifid-lipped Catasetum.

Plate LV.

Flowers spotted, the two petals connivent with the superior sepal; lip very patent, plane, trifid; the lateral segments acuminate, intermediate shorter, thick and obtuse.

Catasetum trifidum, *Hook. Bot. Mag.* t. 3262.

Myanthus cernuus, *Lindl. Gen. et Sp. Orchid.* p. 155. *Bot. Reg.* t. 1721.

Introduced to our stoves from Trinidad, through the Glasgow Botanic Garden, in 1833. It flowered in May.

Fig. 1. Front view of an entire flower. 2. Anther-case. 3. Pollen-masses :—*magnified.*

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21. STANHOPEA, *Hook.*

Perianth membranaceous, very patent, or reflexed. *Sepals* free, subundulate, withering with the rest of the flower. *Petals* similar to the sepals, but narrower. *Lip* free, anticous, without spur, fleshy, bearing a horn on each side; with the upper half (*epichilium*) convex, the lower (*hypochilium*) hollow. *Column* very long, petaloid and margined. *Anther* two-celled. *Pollen-masses* two, elongated, cleft; *caudicle* shorter than the two-lobed stipitate *glandule.—Epiphytal pseudo-bulbous* plants. Leaves *plaited.* Scapes *radical, sheathed, few-flowered.* Flowers *very large, more or less spotted. Lindl.*

Sir W. J. Hooker named this genus in compliment to Earl Stanhope; there are upwards of thirty species noted.

This is an extremely fine, showy, and desirable genus of plants, and particularly curious from the uniform manner in which the different species throw out their flower stems: these when grown in baskets are mostly found to protrude through the bars or wires of the bottom. Amongst the most beautiful of the species, will be found *S. tigrina*; the sepals and petals are yellow, richly marked with large spots and blotches of deep purple, the labellum is ornamented with much smaller spots of the same colour. The specific name of *S. eburnea* implies it to be of a pure white, like ivory; the inside of the labellum is marked with deep pink; the rich, thick, white and glossy nature of the flower gives it the appearance of polished ivory or wax: *S. insignis*; the sepals and petals are a pale yellow much spotted with purple red; the labellum is white with shades of purple, and thickly dotted with dark purple spots.

We cannot omit noticing the following species as highly ornamental and well worthy of a place in every collection. *S. aurea*, *Martiana*, *oculata*, *quadricornis*, *saccata*, and *Wardii*. The majority of the species are highly perfumed, but withal, too heavy for a room. We recommend this genus being grown in either wooden or wire baskets suspended from the roof of the house, or on blocks of wood. They may also be cultivated in pots, but in this case, they must be placed very high over the rim, on small pieces of tufted peat built up, on which the plant must be secured until it takes root, and becomes fixed and steady, and even then many flowers may be totally lost, as they generally throw down their flower stems, in such a position, as to render it impossible for them to escape being smothered in the pot. The material on which they should be placed, either in a pot or in a basket, is fibry peat, broken into small lumps, with charcoal; the basket should be lined with moss, on which the lumps of peat should be placed, the plant should then be fastened on the peat, it will soon extend its roots and become firm. If placed on a block, the roots should be covered with a small portion of moss. While the plants are making their young shoots, care should be taken to prevent the water remaining in them, as they are very liable to damp and rot off. It is not the occasional moisture or wet that affects them, it is the continued damp; they should therefore be dried up every day if possible by the admission of air into the house. This is equally applicable to every other genus of orchidaceous plants. They do not require a high temperature. We find them grow very luxuriantly, in, from 70° to 75° during the day time, and 60° to 65° at night, and some nights even lower; an occasional gentle syringing over the plants once or twice a week will be found of great advantage; with this treatment, we have had sixty flowers expanded at a time on *S. oculata*, all protruding through the bottom of the basket.

1. STANHOPEA TIGRINA, *Batem.*

Tiger-spotted Stanhopea.

PLATE LVI.

Hypochilium subrotund, within radiated with glandulose lamellæ; metachilium with two porrected falcate horns, as long as the three-toothed epichilium; lateral sepals very large, roundish, oblong, much wider than the petals. *Lindl.*

STANHOPEA tigrina, *Batem. Orchid. Mex. et Guatem.* t. 7. *Lindl. Bot. Reg.* 1839, t. 1. *Hook. Bot. Mag.* t. 4197.

Perhaps no Orchideous plant is more calculated to attract attention than the present, whether we consider the large size of its blossoms, their strange form and almost waxy consistence (melting away as it were in age), their singular markings, or the powerful fragrance they exhale, scenting the whole stove and almost too strong to be agreeable; but which is considered to resemble a mixture of Melon and Vanilla. It is now not uncommon in our collections, and is said to have been introduced by Messrs. Low of Clapton, from Xalapa, in Mexico. It flowers copiously during the summer and autumnal months.

Fig. 1. Lip:—*natural size.* 2. Pollen-masses:—*magnified.*

2. STANHOPEA EBURNEA, *Lindl.*

Ivory-lipped Stanhopea.

PLATE LVII.

Lip oblong, not constricted at the middle; hypochilium two-horned near the base; epichilium ovato-oblong, obtuse; metachilium twice as long, solid, plano-convex, truncated and bidentate in front; scape pendulous, two-flowered, twice as long as the petals. *Lindl.*

STANHOPEA eburnea. *Lindl. Bot. Reg.* t. 1529. *Hook. Bot. Mag.* t. 3359.

A native of Brazil, a country pre-eminently rich in Orchideæ. Our figure was taken from a remarkably fine specimen communicated in August, 1833, by the Messrs. Shepherds of Liverpool.

3. STANHOPEA INSIGNIS, *Hook.*

Handsome Stanhopea.

Plate LVIII.

Lip much constricted in the middle, with the sides of the roundish hypochilium horned and incurved; epichilium ovate, depressed in the middle, with two incurved horns at the base. *Lindl.*

Stanhopea insignis, *Hook. Bot. Mag.* t. 2948–9. *Lindl. Gen. et Sp. Orchid.* p. 157.

Epidendrum grandiflorum, *Humb. et Bonpl. Pl. Æquinoct.* p. 94. t. 27.

Anguloa grandiflora, *Humb. et Bonpl. Nov. Gen. et Sp. Orchid.* p. 157.

A native of the vicinity of Cuença in El Equador, if Dr. Lindley is correct in referring the *Epidendrum grandiflorum* of Humboldt to it, and there is but little reason to doubt it. It is, however, the species on which the genus *Stanhopea* was founded, and the first of the genus known in our collections. It flowered in the stove of the Royal Botanical Gardens of Kew as early as 1827, but the plant had been imported some years previously from some part of South America.

Plate LVIII. Plant of *Stanhopea insignis*:—*natural size.*

22. GONGORA, *Ruiz et Pav.*

Perianth spreading. Lateral *sepals* free, divaricate, the upper one connate with the back of the column. *Petals* smaller, adnate with the middle of the column. *Lip* continuous with the base of the column, free, unguiculate; *hypochilium* spreading, horned on each side; *epichilium* vertical, ancipitate, acuminate. *Column* very long, arcuate, clavate, margined. *Anther* subbilocular. *Pollen-masses* two, linear, sessile, upon a wedge-shaped *caudicle.* —*Epiphytal pseudo-bulbous* Herbs. Leaves *plaited.* Racemes *very long, flexuose, many-flowered. Lindl.*

Of this genus, which has been named after some Viceroy of New Granada, we do not find more than six distinct species noted. The flowers of *G. atropurpurea* are a dark purple with a strong smell of allspice, and from its extraordinary appearance when in flower, the natives call it "the Cockroach Plant;" *G. maculata* has the same habit of growth; the flowers are a clear bright yellow, delicately banded with rich Sienna brown, the labellum inclining to yellowish greenish white, slightly spotted. The flowers of this genus are produced on long pendent racemes, frequently exceeding two feet in length, and resemble, when expanded, a number of large curiously formed flies. They thrive well in baskets, but we prefer growing them in pots; while growing they require a hot moist atmosphere, when at rest they must be kept cool and dry; if they are subjected to much moisture during this season, they are liable to the loss of their roots, and the tubers are apt to rot. The young shoots in spring frequently damp off, if kept too wet.

1. GONGORA ATROPURPUREA, *Hook.*

Dark-flowered Gongora.

PLATE LIX.

Leaves much plaited; sepals from a broad base, acuminate; hypochilium with about four horns and interspersed teeth. *Lindl.*

GONGORA atropurpurea, *Hook. Exot. Fl.* t. 178. *Bot. Mag.* t. 3220.

A native of Trinidad and the adjacent continent of South America.

Fig. 1. Column, with a sepal and two petals. 2. Lip :—*magnified.*

2. GONGORA MACULATA, *Lindl.*

Spotted Gongora.

PLATE LX.

Leaves five-plicate, obovato-oblong, very much narrowed at the base; lateral sepals narrow with a broad base; hypochilium oblong, convex beneath, obtusely two-horned at the base, truncate at the apex, the acute angles extended into two tendrils, epichilium acuminate. *Lindl.*

GONGORA maculata, *Lindl. Bot. Reg.* t. 1616. *Hook. Bot. Mag.* t. 3687.

A most singular looking species, much brighter coloured, and hence prettier, than the *G. atropurpurea,* from which it is not only distinguished by the colour, but by the different structure of the flower. It is a native of Guiana, and first imported by Mr. Moss of Otterspool, near Liverpool. It flowers during the summer months.

Fig. 1. Flower. 2. 2. Outer and inner view of an anther-case. 3. Pollen-masses :—*magnified.*

23. CORYANTHES, *Hook.*

Perianth very patent. *Sepals* dilated, flexuose, conduplicate, the lateral ones very large, distinct at the base. *Petals* much smaller, erect. *Lip* unguiculate, very large, galeate, continuous with the base of the column, not articulated, tridentate, in the middle of the claw bearing a cup-shaped appendage. *Column* terete, two-horned at the base, elongated, recurved at the apex and two-winged. *Stigma,* a transverse cleft. *Anther* two-celled. *Pollen-masses* two, compressed, sulcated behind; *caudicle* linear; *gland* lunate, with the apices approximately recurved.—*Epiphytal pseudo-bulbose* Herbs. Leaves *striated.* Racemes *pendulous.* Flowers *very large.* *Lindl.*

Sir William Hooker has given the name to this genus from κόρυς, a *helmet,* and ἄνθος, a *flower,* in consequence of the helmet-shaped appendage to the labellum of the flower.

There are not many species of this genus known. The flowers of *C. speciosa,* which is probably the least curious of the genus, are nevertheless large and showy, of a bright yellow colour, the upper part of the labellum being a rich deep orange. They emit a very pleasing perfume. The flower-stem grows erect, whereas in the other species it is pendulous. The flowers of *C. maculata* are a light straw colour, the inside of the labellum is blotched with dark purple; but in *Parkeri* (Parker's variety) the colour is much lighter, and rather inclining to a greenish tinge, while the labellum is dull purple and light brown. The inside of the labellum is thickly marked with small purple spots.

Probably the most extraordinary flower of the entire tribe of Orchideæ is *C. macrantha*. The sepals and petals are an ochry yellow colour, irregularly spotted with spots of dull purple; that part of the labellum from which it derives its generic name, the cup or helmet-like formation, is ochry yellow, streaked and spotted with pale crimson. There is another species lately introduced, *C. Fieldingii*; the general colour of the flowers of this species is a pale brownish yellow, a little mottled and irregularly stained with a cinnamon colour.

The genus requires to be treated somewhat after the manner of *Stanhopea*. We prefer growing the major part of the species on blocks or in baskets, but particularly *C. macrantha*. They may be grown in pots, in turfy peat, well drained, but they must be placed high on the material. When the buds begin to swell and vegetation commences, they require a good supply of moisture and heat. We find *C. speciosa* rather difficult to manage.

1. CORYANTHES SPECIOSA, *Hook.*

Showy Coryanthes.

PLATE LXI.

Leaves narrow-lanceolate; scapes erect, two-flowered; lip whole-coloured. *Lindl.*

CORYANTHES speciosa, *Hook. Bot. Mag. sub.* t. 3102. *Lindl. Gen. et Sp. Orchid.* p. 159.

GONGORA speciosa, *Hook. Bot. Mag.* t. 2755.

Introduced by the late Mrs. Arnold Harrison from Brazil, where it grows, at Bahia, in large patches upon the trunks of trees. It flowers in May. Mr. Henry Shepherd observed the singular cup-shaped appendage at the base of the labellum to be rapidly filled with honey; and some cups that were emptied in the morning, were on the afternoon of the same day half filled with the nectariferous juice.

Fig. 1. Top of the germen, column, and lip. *A.* The lip. *a.* The cup at the base. *b.* The helmet. *c.* The column. *d.* The stigma. *e.* The membranaceous processes between which are the pollen-masses. *f.* The processes from which the honey is distilled. 2. Part of the extremity of the column bearing the pollen-masses, which are forced back. 3. Side view of the pollen-masses:—*all more or less magnified.*

2. CORYANTHES MACULATA, *Hook.*

Spotted Coryanthes.

PLATE LXII.

Leaves broad, lanceolate; sepals linear, semi-cordate, erect; lip purple, spotted within and having elongated horns. *Lindl.*

CORYANTHES maculata, *Hook. Bot. Mag.* t. 3102. *Lindl. Bot. Reg.* t. 1793. *Gen. et Sp. Orchid.* p. 159.

Native of the trunks of trees in the forests of Demarara, where it was first detected by James Ankers, Esq., whose specimens blossomed in the stove of the Botanic Garden of Liverpool in June, 1831. It differs from the *C. speciosa* in the much greater breadth of the leaves, in its more numerous and pendulous racemes, and especially in the colour of its flowers, which are here of a pale and dingy yellow, more or less approaching to tawny, and in having the inside of the appendage to its labellum spotted and blotched with purple.

A. Column and lip, with its helmet-like appendage:—*natural size.* Fig. 1. Summit of the column, with the anther. 2. Inner view of the anther-case. 3. Pollen-mass:—*magnified.*

3. CORYANTHES MACULATA, var. PARKERI.

Spotted Coryanthes; Mr. Parker's var.

PLATE LXIII.

(For specific characters and synonymes, see preceding article.)

Var. β. *Parkeri*; appendage purplish brown, *Hook. Bot. Mag.* t. 3747.

Imported by C. S. Parker, Esq., from British Guiana, 1837, and obligingly communicated to us in the hope it might prove a distinct species from *C. maculata.* The marking of the flower is indeed considerably different, but not more so than we find to exist in other Orchidaceous plants. The cup-shaped appendage to the labellum is here much larger than we have ever seen it before: its colour is a dingy brown purple, which tint extends a good deal over the lip itself, which has, moreover, smaller and more indistinct spots than the type of the species.

Fig. 1. Column, lip, and appendage:—*natural size.* 2. Column. 3. Upper, and 4, underside of an anther-case. 5. Pollen-masses:—*magnified.*

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24. PERISTERIA, *Hook.*

Flowers subglobose. *Perianth* somewhat fleshy. *Sepals* and *petals* equal, very concave, the latter broadly obovate. *Lip* obovate, fleshy, truncated, articulated with the base of the column, with the disk crested and fleshy. *Column* adnate with the base of the petals, the apex only free, below much produced, remarkably dilated and winged, the wings erect, obtuse, fleshy, thick, internally unidentate. *Anther* two-celled. *Pollen-masses* two, clavate, compressed, cleft on one side.

Sir William Hooker has named this genus most happily from περιστερα, a *dove*, in allusion to the resemblance the column of the flower bears to that bird.

We find but six species noted—this genus has been divided by Professor Lindley, from which he has abstracted *P. Barkeri*, and *P. Humboldtii*, and formed a new genus, *Acineta*, ἀκίνητος, *immovable*, in consequence of the jointless condition of the lip. The flowers of *P. elata* grow on an erect stem from four to six feet high, springing from the base of the pseudo-bulbs, they are like white wax, *very very* slightly tinged with yellow, delicately spotted with small lilac spots on the base of the labellum, and emit a peculiarly delicate fragrance. The column bears a striking resemblance to a dove, with the wings partially expanded, for which reason, it is called by the natives "*el spirito santo,*" and the plant is hence used by them as native offerings on their altars in their houses of worship. This species should be grown in pots in leaf-mould and sandy peat, with a portion of rotten cow dung, mixed with charcoal and potsherds to insure a good drainage; it should not be *over watered* at any period, but requires to be vigorously grown to insure its flowering well the ensuing season; its luxuriant growth will be considerably assisted by a gentle bottom heat, and a regular moderate supply of water. It requires a good deal of pot room, as the roots are large and fleshy. The duration of its delicate and beautiful flowers may be prolonged by removing it to a cooler, and its colour may be preserved by a drier, atmosphere; moisture will soon turn the flowers yellow, but in this situation they will require a supply of water and an occasional syringing over the tubes and foliage only. *P. pendula* is very different, and wants the delicate beauty of *elata*. The flowers are a dingy lilac, spotted with light purple, it is slightly fragrant, and flowers on a pendent scape about eight inches long, producing from five to eight flowers. *P. Hum-*

boldtii (Acineta) is a splendid species; the flowers are large, variously coloured and spotted, a rich yellowish-chocolate is the prevailing hue. This species grows best in a basket lined with moss, in sandy fibrous peat; it is difficult to imagine a finer or more gorgeous sight than a large plant of this species suspended from the roof of the house, in full flower. *P. Barkeri* (Acineta) is far inferior to the preceding species, the flowers are also pendulous: it requires the same treatment. They are a rich yellow colour, slightly spotted with red, and a few red-brown spots on the inside of the labellum. *P. cerina* and *stapelioides* are inferior to the others, the flowers are smaller and the colour not so brilliant. The plants of this genus are showy and very desirable, they thrive well in fibrous sandy peat, leaf-mould, with pot-sherds or charcoal broken small. They all require to be well drained, and not over watered at any season, but particularly when dormant. They, particularly *P. elata*, will be grateful for a little bottom heat. They may with the exception of *elata* be grown on blocks, in which situation, with care, they will well display their pendulous racemes of flowers.

1. PERISTERIA ELATA, *Hook.*

Lofty Dove-flower.

Plate LXIV.

Pseudo-bulbs very large, ovato-globose; leaves ample, lanceolate; scape very tall, many-flowered; wings of the column large, erect, bearing a tooth near the base; lip with a large, fleshy, orbicular crest on the disk.

Peristeria elata, *Hook. Bot. Mag.* t. 3116.

Native of Panama, and one of the most remarkable of Orchideous plants, of stately growth, and bearing so exact a resemblance to the head, neck, and wings of a dove in its winged column as to have received the native name of *"el spirito santo."* Under that appellation it was sent to Europe in 1826, by Henry Barnard, Esq., of Truxillo in Peru.

Fig. 1. View of the column and lip, the latter bent down. 2. Side view of the upper part of the column and anther. 3. Anther-case. 4. Upper, and 5, underside of the pollen-masses:—*magnified.*

2. PERISTERIA PENDULA, *Hook.*

Pendulous Dove-flower.

Plate LXV.

Pseudo-bulbs oblong-ovate; scape short, few-flowered, pendulous; wings of the column or lobes small, standing forward; base of the lip with a thick crested disk; upper lobe with the disk channelled and crested.

Peristeria pendula, *Hook. Bot. Mag.* t. 3479.

Evidently a congener with *Peristeria elata.* Imported to Europe from Demarara, by John Allcard, in whose stove at Stratford Green it flowered for the first time in January, 1836.

Fig. 1. View of the base of a flower to show the combined sepals. 2. Front view of the column and lip, the floral coverings being removed. 3. Side view of ditto. 4. Side view of the same, the upper lobe of the lip (fig. 5) being removed. 6 and 7. Anther. 8 and 9. Pollen-masses:—fig. 2 to 9, *more or less magnified.*

3 PERISTERIA HUMBOLDTII; var. FULVA.

Humboldt's Peristeria, or *Dove-flower; tawny-flowered* var.

PLATE LXVI.

Pseudo-bulbs oblong, angled; raceme elongate, pendulous, many-flowered; sepals roundish, ovate, concave; petals smaller, ovate, very obtuse; lip subrotund, fleshy, very concave, deeply three-lobed; lateral lobes roundish, within furnished with a lobule, terminal one oblong, ovate, obtuse, channelled; disk with an oblongo-quadrate, dilated, retuse appendage; column dilated above on each side into a wing.

PERISTERIA Humboldtii, *Lindl. Bot. Reg.* 1843. t. 18.

ANGULOA superba, *H. B. K. Nov. Gen. et Sp. Am.* vol. i. p. 343. t. 93. *Lindl. Gen. et Sp. Orchid.* p. 160.

Var. flowers tawny, *Hook. Bot. Mag.* t. 4156. (TAB. NOSTR. LXVI.)

For this noble specimen we are indebted to Mr. Barker, in whose collection near Birmingham it flowered in 1843. The colour of the flowers is considerably different from that given in the Botanical Register above quoted, and hence it is here indicated as a variety. Its native country is Venezuela, where it was first detected by Humboldt. It is one of the most striking of Orchidaceous plants, and few are more worthy of cultivation.

Fig. 1. Side view of the labellum and column. 2. Front or inner view of the labellum. 3. Front view of the column. 4. Pollen-masses:—*magnified.*

4. PERISTERIA BARKERI, *Batem.*

Mr. Barker's Peristeria or *Dove-flower.*

PLATE LXVII.

Pseudo-bulbs ovate, deeply furrowed, three or four-leaved; scapes pendulous, many-flowered, about as long as the leaves; flowers fleshy, nearly closed; sepals and petals nearly equal, concave, obtuse; lateral lobes of the three lobed labellum entire, erect; intermediate narrow, callous at the base; column apterous (or nearly so) slightly downy. *Batem.*

PERISTERIA Barkeri, *Batem. Orchid. Mex. et Guatem.* t. 8.

The leaves of this noble species are two feet long, arising from the summit of a pseudo-bulb from six to seven inches long. The scape emerges from the base of the pseudo-bulb, is pendent, a foot and a half long. It justly bears the name of Mr. Barker of Birmingham, whose then collector, Mr. Ross, detected and introduced this plant from the dark ravines with which the neighbourhood of Xalapa, in Mexico, abounds. Our specimen flowered in the Royal Gardens of Kew, in 1843.

Fig. 1. Column and lip. 2. Column, freed from the lip:—*natural size.* 3. Front view of the lip:—*magnified.*

24. BROMHEADIA, *Lindl.*

Sepals and *Petals* nearly equal, very patent. *Lip* cucullate, three-lobed, altogether parallel with the column, inarticulate at the base, downy along the elevated axis. *Column* broadly winged, fleshy, elongated. *Anther* two-celled, conical at the back, articulated upon the column. *Pollen-masses* two, reniform, excavated behind, sessile upon a broad triangular membranaceous *gland.—Caulescent (bulbless)* Herb. Leaves *distichous, coriaceous, emarginate.* Spike *terminal, distichous, flexuose, many-flowered; on a long* peduncle; bracteas *short, rigid, tooth-like.* Flowers *showy, straight. Lindl.*

Dr. Lindley has called this genus after Sir Edward Bromhead, Bart. But one species *B. palustris* has as yet made its way to Europe, and much is not known of it. Mr. Cuming reports it "*to have been dug out of a bog,*" we must therefore suppose it will require a considerable portion of moisture, and such changes of season as the Island of Sumatra experiences. The plant, in growth, somewhat resembles *Epidendrum elongatum,* the flowers are white and rather drooping; the labellum is yellow and violet, streaked with pink and covered with purple down. It was first supposed to be *Grammatophyllum Finlaysonianum,* but a closer examination determined it to be a new genus.

1. BROMHEADIA PALUSTRIS, *Lindl.*

Marsh Bromheadia.

PLATE LXVIII.

BROMHEADIA palustris, *Lindl. in Wall. Cat.* n. 7561. *Bot. Reg.* 1844. t. 18. *Hook. Bot. Mag.* t. 4001.

GRAMMATOPHYLLUM Finlaysonianum, *Lindl. Gen. et Sp. Orchid.* p. 173.?

We owe the possession of a fine flowering plant of this in Kew Gardens to His Grace the Duke of Northumberland. Mr. Cuming detected the plant "in a bog in Sumatra." Mr. Finlayson sent it to Dr. Wallich from Singapore. It is a tall-growing, graceful plant, with very delicate flowers.

Fig. 1. Column. 2. Labellum. 2. Pollen-masses:—*magnified.*

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25. ACROPERA, *Lindl.*

Sepals patent, uppermost one galeate, lateral ones spreading. *Petals* minute, oblique, truncated at the apex, subpatent. *Lip* unguiculate, elastically articulated upon the base of the column, three-lobed, intermediate lobe smaller and saccate. *Pollen-masses* two, linear, convolute; the *caudicle* linear-subulate; *gland* minute. *Rostellum* subulate.—Epiphyte, *with drooping, many-flowered* racemes, *and a vegetation resembling* Maxillaria. *Lindl.*

From ἄκρος, the *extremity,* and περα, a small *bag,* from the bag-like appendage at the base of the labellum.

We have but one species of this genus noted, though there are three or four very marked varieties, which only differ in colour. In *A. Loddigesii* the flowers are a pale reddish-yellow, the labellum is dark red-brown. We have four distinct varieties of this flower, one of which is much darker than *Loddigesii,* and one nearly brown, the other is a bright yellow, and is sometimes denominated *A. citrina.* It is a pretty and curious genus, easily cultivated, and producing a number of flowers on pendent racemes, which perfume the house with a rich aromatic scent. They thrive well in either pots or baskets in decayed moss and fibrous sandy peat well drained.

1. ACROPERA LODDIGESII, *Lindl.*

Mr. Loddiges' Acropera.

PLATE LXIX.

ACROPERA Loddigesii, *Lindl. Gen. et Sp. Orchid.* p. 172. *Hook. Bot. Mag.* t. 3563.

MAXILLARIA galeata, *Lindl. in Lodd. Bot. Cab.* t. 1645.

A very singular epiphytous Orchidaceous plant, introduced to the stoves of this country from Xalapa, in Mexico, by Mr. George Loddiges, whence Dr. Lindley has been led to distinguish it by his name; a compliment which he well deserves. The habit of the flowering plant is quite peculiar: the racemes are quite pendent on filiform stalks, and in the state of the bud, as well as after expansion, the long and regularly decurved ovaries, as slender as pedicels, are arranged in three rows. The blossoms are of short duration.

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26. ZYGOPETALUM, *Hook.*

Perianth spreading, *sepals* and *petals* ascending, nearly equal, connate with the produced claw of the column. *Labellum* muticous, undivided, patent, the claw ascending, and bearing a large, transverse crest. *Column* short, arcuate, semiterete. *Anther* subbilocular. *Pollen-masses* two, bipartible, nearly sessile upon a transverse *gland.*—*Stemless* Herbs; *with plicate, patent* leaves. Flowers *showy*; lip *blue*. *Lindl.*

Sir William Hooker has named this genus from *ζυγος*, a *yoke*, and *πέταλον*, a *petal*. This is not a numerous genus. *Z. Mackayi* derives its specific name from the Curator of the Dublin College Botanical Garden, who was the first person who flowered it. It is a fine showy species, the sepals and petals are a yellowish-green, blotched and spotted with rich red-brown; the labellum is large and streaked and spotted with purple. The flower scape grows from two to three feet high, and bears from six to eight very showy handsome flowers, which emit a most delicate perfume. *Z. rostratum* is far from being a handsome species, the dull muddy red colour of the sepals and petals, render it less interesting than the other plants of the genus; the labellum is large, white, tinged with purple and streaked with light pink. *Z. maxillare* is an extremely beautiful and valuable species, remaining for a long time in flower; the sepals and petals are light green, marked with large chocolate-coloured blotches; the labellum is a deep brilliant blue-shaded off to white.

This is a very fine genus of plants, remarkably showy when in flower, and, when well grown, the foliage is rich and luxuriant. They succeed well in a moist, warm atmosphere, in peat and sphagnum, mixed with potsherds or charcoal. They should be kept growing vigorously, until they perfect their pseudo-bulbs; during this period they like a liberal supply of water, and occasionally a syringing over head. While at rest, they require to be kept cool and dry, to ensure their flowering well.

1. ZYGOPETALUM ROSTRATUM, *Hook.*

Beaked Zygopetalum.

PLATE LXX.

Lip roundish, entire, with margins reflexed; column, with the wings, rounded; anther with a long beak.

ZYGOPETALUM rostratum, *Hook. Bot. Mag.* t. 2819.

Introduced from Demarara to the Liverpool Botanic Garden by C. S. Parker, Esq., in 1826, where it flowered in October, 1827.

Fig. 1. Lip. 2. Column. 3. Anther. 4 and 5. Pollen-masses :—*magnified.*

2. ZYGOPETALON MACKAII; β, CRINITUM.

Mr. Mackay's Zygopetalon; hairy-lipped var.

PLATE LXXI.

Lip obcordate, pubescent, waved, spreading; column wingless; anther scarcely beaked.

ZYGOPETALON Mackaii, *Hook. Bot. Mag.* t. 2748. *Lindl. Gen. et Sp. Orchid.* p. 187.

EULOPHIA Mackaiana, *Lindl. Bot. Reg.* t. 1433.

Var. *β. crinitum*; veins of the lip more hairy. *Hook. Bot. Mag.* t. 3402. (TAB. NOSTR. LXXI.)

ZYGOPETALON crinitum, *Lodd. Bot. Cab.* t. 1687.

Native of Brazil, and evidently a large-flowered, more hairy-lipped variety of *Z. Mackaii*; equally a native of Brazil. It first flowered in the collection of Lord Fitzwilliam at Wentworth, in October, 1834.

Fig. 1. Front view of the column, terminated by the anther. 2. Apex of the column, from which the anther-case is removed. 3 and 4. Side view of the lip :—*magnified.*

3. ZYGOPETALON MAXILLARE, *Lodd.*

Tree-Fern Zygopetalon.

PLATE LXXII.

Lip spurred, roundish, obovate, with a very large, erect crest at its base, resembling the jaw of an animal; column wingless; anther obtuse.

ZYGOPETALON maxillare, *Lodd. Bot. Cab.* t. 1776. *Lindl. Gen. et Sp. Orchid.* p. 188. *Hook. Bot. Mag.* t. 3686.

A very charming epiphyte, remarkable for the colour of the labellum, which is a rich and very deep purple, and still more so for the form of the large callosity at its base, which Mr. Loddiges compares to the lower jaw of some animal, and which in shape resembles a horse's hoof. If well grown this is the most beautiful of the genus, for it has in its native forests a rhizoma more than six feet in length, while from the tops of its branches the racemes of flowers appear, of which there are three within a few inches of each other on a native specimen in my Herbarium. Mr. Gardner found it in the Organ Mountains, always growing on the stems of Tree-Ferns.

Fig. 1. Lip and Column, side view :—*natural size.* 2. Column and anther, front view :—*magnified.*

27. CHYSIS, *Lindl.*

Sepals slightly connate, patulous; lateral ones produced at the base and adnate with the column, resembling a spur. *Petals* resembling the sepals. *Labellum* three-lobed, patulous, with callous veins at the base. *Column* margined, canaliculate, muticous. *Anther* roundish, operculate, glabrous. *Pollen-masses* eight, connected with a yellow plate, four exterior slender, covering the four thicker interior ones. *Rostellum* laminate, convex.—*Epiphytal occidental* Herb, *pendulous from trees, having the naked stems of* Cyrtopodium, leaves *nerved and sheathing at the base*, racemes *lateral, many-flowered. Lindl.*

C. aurea is the only species of this genus known. The flowers are yellow, spotted with brownish-yellow, the column is white on the inside, spotted with crimson, the labellum is also white streaked with crimson. This plant was found suspended by its long roots from the branches of trees in the valley of Cumancoa in Venezuela by Mr. Henchman. It is not common in collections. The same treatment recommended for the genus *Vanda*, is also recommended for its growth.

1. CHYSIS AUREA, *Lindl.*

Golden-flowered Chysis.

Plate LXXIII.

Chysis aurea, *Lindl. Bot. Reg. t.* 1937. *Hook. Bot. Mag.* t. 3617.

An Orchideous plant of great beauty, discovered by Mr. Henchman in 1834, in the valley of Cumancoa, in Venezuela, and introduced by him to the collection of Messrs. Low of the Clapton Nursery. Its mode of blossoming is singular, for the old stems are constantly pendent, the extremities and very young shoots alone curved upwards,—characters not easily exhibited in so small a figure as the annexed one.

Fig. 1. Lip. 2. Column. 3. Upper lip of column. 4. Pollen:—*all magnified.*

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28. MASDEVALLIA, *Ruiz et Pav.*

Perianth closed, connate with the acuminate or aristate *sepals* into a campanulate tube. *Petals* minute. *Lip* minute, oblong, concave, entire, articulated with the column. *Column* erect, linear, canaliculate. *Anther* hemispherical. *Pollen-masses* two, with a short *caudicle.*—Herbs *with the* leaves *of* Pleurothallis; scapes *single-flowered. Lindl.*

This genus is named after Joseph Masdevall, a Spanish botanist. There are but a few species of this genus known, they are plants of humble growth, and do not contain anything very striking or beautiful. The flowers of *M. cuprea* are copper-coloured and dark purple; those of *M. floribunda* are a dull brownish-yellow; in *M. infracta* they are of a whitish-yellow. *N. fenestrata* is a curious species; the sepals, being united at the apex, leave a small hole, through which the light is seen, as through a window; the colour is a deep dark blood-colour. This genus may be grown in pots well drained, in turfy fibrous peat broken small, and charcoal or pot-sherds, the plants should be potted rather high, water should be moderately supplied, but as the plant assumes a more vigorous growth it may be increased. The species require the usual rest and consequent cool treatment of the other genera.

1. MASDEVALLIA FENESTRATA, *Lindl.*

Windowed Masdevallia.

PLATE LXXIV.

Leaf oblong, emarginate, much longer than the petiole, nearly equal to the stem; flowers aggregate; peduncles nearly equal to the petiole; sepals carinate, connate at the apex, the dorsal one free on each side below the base, thus leaving an opening on each side; petals obovate, mucronulate; lateral lobes of the three-lobed lip subtriangular, intermediate one ovate, acute, ciliated. *Lindl. MS.*

MASDEVALLIA fenestrata, *Lindl. MS.* *Hook. Bot. Mag.* t. 4164.

One of the very curious productions of nature, of which there are such frequent instances among the Orchidaceous plants. The individual is not only singular in colour, the flowers being externally of a deep blackish blood colour, but still more singular in form, with the sepals united below and at the apex, leaving a small space much below the point, which is open and window-like; the whole representing the head of a bird, with a perforation where the eye should be. Our plants were sent from Jamaica by the Kew collector, Mr. Purdie, in 1843.

Fig. 1. Entire flower. 2. Flower with the sepals laid open, to show the petals, &c. 3. Petals;—lip and column removed. 4. Column, with the lip laid open. 5. Pollen-masses:—*all more or less magnified.*

29. TRICHOPILIA, *Lindl.*

Sepals and *petals* equal, patent, narrow. *Lip* large, petaloid, convolute, parallel with the column, three-lobed, intermediate lobe subbilobed, nearly plane, naked within. *Column* terete, clavate. *Clinandrium* cucullate, three-lobed, fimbriated. *Anther* one-celled, compressed, convex in front. *Pollen-masses* two, sulcate behind, adhering to the slender cuneate *caudicle*; *gland* minute.—*Fleshy* Pseudo-bulbs, *clothed with monophyllous, coriaceous, spotted* sheaths. Flowers *solitary, axillary. Lindl.*

From θρὶξ, a *hair*, and πιλίον, a *cap*, in consequence of the anthers being concealed below a cap, surrounded by three tufts of hair.

We know but of one species of this genus, and a very curious and beautiful flower it produces, *T. tortilis*; named from the extraordinary manner in which the sepals and petals are *twisted.* They are of a lightish-green, rather inclined to brown, stained with light pink, the labellum is white, delicately tinged with pink and a bright yellow inside, covered with large red and pink spots. It is not a particularly easy plant to cultivate well, it likes shade, and if treated as the genus *Maxillaria*, will succeed on a block, in a pot, or in a small basket.

1. TRICHOPILIA TORTILIS, *Lindl.*

Twisted-petaled Trichopilia.

PLATE LXXV.

TRICHOPILIA tortilis, *Lindl. Bot. Reg.* t. 1863. *Hook. Bot. Mag.* t. 3739.

A Mexican genus, established by Dr. Lindley on this solitary species; introduced by Mr. Barker, in whose collection at Springfield near Birmingham it flowered in January, 1839. It has since become common in our stoves.

Fig. 1. Column. 2. Pollen-masses :—*magnified.*

30. RODRIGUEZIA, *H.B.K.*

Perianth patent, *sepals* nearly equal; the two lateral ones connate beneath the labellum. *Labellum* entire, clawed, horned at the base, callose in the middle; the *claw* parallel with the column. *Column* terete, bearded at the apex. *Anther* one-celled, fleshy. *Clinandrium* naked, bent downwards. *Pollen-masses* two, each with a cavity behind; *caudicle* elastic.—*Epiphytal and pseudo-bulbous* Herbs. Leaves *coriaceous or membranaceous, plaited.* Spikes *secund.* Flowers *showy. Lindl.*

This genus has been named after Emanuel Rodriguez, a Spanish botanist and physician.

Of this genus we find six species noted. In *R. crispa,* the flowers are a dull sea-green bordered with yellow, and very much curled; the flowers of *R. maculata* are white, slightly spotted with red; those of *R. planifolia* droop gracefully, are light greenish-yellow and very fragrant; *R. secunda* produces its flowers on rather a drooping raceme, from eight to nine inches long, of a rich dark pink-colour, they are very beautiful and graceful. The plants of this genus are very free flowerers, and well worth cultivating. They grow well in a warm atmosphere on blocks, with the roots at first protected with a slight covering of moss: this soon becomes unnecessary, as they grow a considerable length, and hang down apparently in search of moisture and nutriment. We have several on blocks over a cistern, with the roots three or four feet long, some of them floating on the water. Thus situated they grow vigorously and flower freely and profusely. When they have completed their growth, they are of course placed in a less humid situation. They may also be grown in pots, in the usual kind of soil.

1. RODRIGUEZIA SECUNDA, *H.B.K.*

Side-flowered Rodriguezia.

PLATE LXXVI.

Pseudo-bulbs compressed, oval; leaves lanceolate, emarginate and oblique at the apex; spike cylindrical, recurved, longer than the leaves; upper sepal fornicate; petals ovate, obtuse; lip abruptly deflexed, with the disk callose, cuneate, emarginate at the apex. *Lindl.*

RODRIGUEZIA secunda, *H.B.K. Nov. Gen. et Sp. Am.* t. 92. *Lindl. Bot. Reg.* t. 930. *Hook. Bot. Mag.* t. 3524.

RODRIGUEZIA lanceolata, *Lodd. Bot. Cab.* t. 676 *(not Ruiz and Pavon).*

PLEUROTHALLIS ? coccinea, *Hook. Ex. Fl.* t. 129.

A very beautiful Orchideous plant, native of Trinidad, and of the Province of Papayan, near Carthagena, and of Demarara.

Fig. 2. Side view of a flower. 3. Lip :—*slightly magnified.*

31. ONCIDIUM, *Sw.*

Perianth spreading. *Sepals* often waved, lateral ones sometimes connate under the labellum. *Petals* conformed. *Labellum* very large, spurless, continuous with the column, variously lobed, tubercled or crested at the base. *Column* free, semiterete, winged on each side at the apex. *Anther* half two-celled, with the *rostellum* sometimes abbreviated, sometimes elongated and beaked. *Pollen-masses* two, furrowed behind; *caudicle* plane; *gland* oblong.—*Epiphytal, sometimes pseudo-bulbous* Herbs. Leaves *coriaceous.* Scapes *panicled, vaginate, rarely simple.* Flowers *showy, yellow, often spotted, rarely white. Lindl.*

From ογκος, a *tumour*; from the plants of this genus having excrescences at the base of the labellum.

This is a most extensive genus of plants, amongst which are probably some of the finest and most beautiful of the orchidaceous family. It would far exceed our limits to particularize many amongst such a collection of splendid species; we cannot, however, leave them totally unnoticed. *O. Carthaginense* produces its brownish green flowers on branching racemes of from five to six feet long, with a large rich foliage. *O. pulvinatum* and *divaricatum* are more compact in the flower-stems, though still branching, and render themselves conspicuous by the mass of deep yellow and brown flowers. *O. altissimum* is curious from the great length of the flower-stems it produces, frequently exceeding ten feet. *O. flexuosum* attracts attention by its profusion of yellow flowers, which, when grown in a basket, hang most gracefully. *O. ampliatum, major,* is a very desirable species from its robust habit, and rich, large, yellow flowers, and succeeds well on a block. *O. Barkeri* is a fine species; its large, light yellow labellum, and light green sepals and petals, blotched and banded with dark brown, make it conspicuous even amongst more beautiful species. *O. Lanceanum,* with its rich foliage and large brown and purple flowers, rich perfume and the long duration of its flowers, added to its not being a difficult plant to grow and to flower well if not over watered, make it a great favourite. *O. ornithorhynchum* deserves a place in every collection, and yet it is rather scarce; the flowers are a beautiful pink with a perfume like new hay; it grows best on a block of wood, and requires to be freely syringed. Mr. Skinner states the temperature and its habitat to be "*climate from* 68° *to* 70° *or* 75°, *in shady, damp places.*" The profusion of chaste, white flowers of *O. pulchellum* insure it a favourable reception; and, though inferior, *O. stramineum* is a very desirable species, with its light, straw-coloured blossoms; nor can we omit *O. roseum* and *sanguineum* as beautiful and free growers, thriving well on blocks, suspended. *O. crispum* is also a very fine species, but difficult to grow, or keep either on a block of wood or in a basket or pot; the flowers are large, of a dull reddish brown, enlivened with yellow and a slight marking of red. *O. Papilio,* the "butterfly plant," is different from any of its relations, flowering on a long slender stem from two to four feet long; the flower is solitary, beautifully varied with yellow, orange, red, and purple brown; it resembles a large butterfly, it also differs in having the foliage spotted, and the pseudo-bulbs of a dark colour.

Mr. Paxton remarks that the large-leaved species should be grown in baskets, suspended from the rafters of the house, filled with moss and rotten wood, which must not on any account be raised higher than the roots of the leaves, or they will be liable to damp off. They may also be grown in pots, properly drained, in turfy peat, sphagnum and charcoal, or on blocks. They thrive well in a damp moist atmosphere, warmer than that required for *Cattleya,* and cooler than is required for the genus *Dendrobium.* While growing, they like a liberal supply of moisture, and an occasional syringing over head. When they have perfected their growth, they should be gradually set to rest for two or three months, in a cool dry house.

1. ONCIDIUM PAPILIO, *Lindl.*

Butterfly Oncidium.

PLATE LXXVII.

Pseudo-bulbs subrotund, compressed, wrinkled, monophyllous; leaves oblong, coriaceous, obtuse, spotted; scape perennial, weak, two-edged, articulated, few-flowered at the apex; upper sepal and petals linear, very long, narrowed at the base; lateral sepals oblong, revolute, waved, longer than the lip; intermediate segment of the lip emarginate, subrotund, crisped, very narrow at the base; lateral ones rounded; gland at the base cristate; wings of the column serrate. *Lindl.*

ONCIDIUM Papilio, *Lindl. Gen. et Sp. Orchid.* p. 203. *Hook. Bot. Mag.* t. 2795 and 3733. *Lindl. Bot. Reg.* t. 910.

A well-known species in our stoves, much cultivated on account of its striking resemblance to some butterfly, or rather moth: and the long, slender scape, supporting the flower at a distance from the foliage, and waving with the slightest current of air, serves to increase the deception. It is a native of Jamaica as well as other West Indian Islands, and varies a good deal in the size and marking of the flower.

Fig. 1. Column and lower portion of the lip:—*magnified.*

2. ONCIDIUM CRISPUM, *Lodd.*

Crisped-flowered Oncidium.

PLATE LXXVIII.

Pseudo-bulbs oblong, sulcate, wrinkled, diphyllous; leaves lanceolate, coriaceous, acute; scape simple, many-flowered; sepals recurved, waved, obtuse; lateral ones semiconnate; petals twice larger than the sepals, oblong, waved, clawed; lateral lobes of the lip conformed, recurved, minute; intermediate one large, clawed, subrotundo-cordate, waved; crest double, deltoid, dentate; wings of the column rounded, denticulate, fleshy. *Lindl.*

ONCIDIUM crispum, *Lodd. Bot. Cab.* t. 1854. *Lindl. Gen. et Sp. Orchid.* p. 197.

A large-flowered and very handsome species of *Oncidium*, native of the Organ Mountains in the neighbourhood of Rio, Brazil, and first made known by Mr. Loddiges in his Botanical Cabinet above qnoted.

Fig. 1. Column. 2. Anther-case. 3. Pollen:—*magnified.*

32. CYRTOCHILUM, *Lindl.*

Lateral *sepals* spreading, free. *Labellum* plane, oblong, often unguiculate, entire or toothed at the margin, narrowed at the apex, tubercled and villous at the base, or many times lamellated. *Lindl.*

From κυρτος, *convex*, and χειλος, a *lip*.

We find but six species of this genus noted, some of which are only varieties of *C. maculatum*, which is a most desirable species; the flower-scape rises from eighteen inches to two feet, throwing out several branches; the flowers are light green, blotched with brown red; the labellum is white, ending in pale yellow, with a few stripes and blotches of rather dull red.

This genus will grow well, either in pots or in baskets, suspended from the rafters of the house, or on blocks. We have them in all these situations, and rather prefer the blocks, in which case the roots should be covered slightly with moss, when first attached to the blocks. If grown in pots, they must be well drained and placed on the same soil as heretofore recommended. While growing vigorously they require a moist heat, with occasional syringings when the shoots become strong; while soft and young they are apt to damp off, if kept constantly wet. When they have formed their tubers, they should be submitted to cool and dry treatment while at rest.

1. CYRTOCHILUM MACULATUM, *Lindl.*

Spotted Cyrtochilum.

PLATE LXXIX.

Pseudo-bulbs ovate, compressed, subangulate, diphyllous and leafy below; leaves broadly ligulate, acuminate, striated, obliquely emarginate at the apex; scape branched; bracteas very short, squamiform; sepals and petals fleshy, obovato-lanceolate, very acute; lip membranaceous, oblong, apiculate, toothed on each side with two lamellæ at the base and horned at each side; wings of the column falcate, entire. *Lindl.*

CYRTOCHILUM maculatum, *Lindl. Bot. Reg.* vol. xix. *Misc.* n. 39. *Sert. Orchid.* t. 25. *Bot. Reg.* 1838. t. 44. *Hook. Bot. Mag.* t. 3880.

β. leaves narrower; lip four-lamellate at the base, destitute of horns. *Hook. Bot. Mag.* t. 3836.

Drawn from a fine specimen at the Woburn Gardens, which had been sent by Mr. Parkinson from Mexico.

Fig. 1. Column and Lip:—*magnified.*

33. ODONTOGLOSSUM, *Lindl.*

Lateral *sepals* spreading, free. *Labellum* plane, unguiculate, ascending; *limb* reflexed, divided, toothed, narrowed at the apex, concave at the base, furnished with a bilamellate, rarely fimbriated crest, often bidentate in front. *Lindl.*

From ὀδοὺς, a *tooth,* and γλῶσσα, a *tongue.*

This genus, although not numerous, contains some very fine species, of which the most gaudy is certainly *O. grande.* Of *O. citrosmum* the flowers are large, snow-white, and rose-coloured, emitting a delicate smell of lemon, elegantly disposed on a raceme about a foot long. *O. Rossii*: this is a difficult species to keep; the flowers are a greenish yellow, blotched with brown; the petals and labellum are white. *O. læve*: the sepals and petals are yellow, blotched with cinnamon brown; the labellum is white, marked across with violet-coloured bands; this species is very fragrant. *O. grande*: truly called the "magnificent;" the flowers are from five to six inches across, on a stem from eight to ten inches long, mottled and barred with a rich red brown on a yellow ground. This plant grows best on a block in a damp shady situation, in a temperature of from 60° to 70°; it should be kept cool and dry while at rest. *O. pulchellum*: the flowers are white; the crest of the labellum is spotted with crimson. This species may be grown on a block, or in a pot on rough peat.

This genus does not require a high temperature, and will succeed in from 60° to 70° degrees of heat, in a moist atmosphere, in either pots, baskets, or on blocks, with an occasional syringing; when their season of rest arrives, they must be kept cool and dry.

1. ODONTOGLOSSUM GRANDE, *Lindl.*

Large-flowered Odontoglossum.

Plate LXXX.

Pseudo-bulbs aggregate, ovato-oblong, compressed, two-edged, diphyllous; leaves lanceolate, acute, twice shorter than the few-flowered scape; sepals lanceolate, lateral ones convex, falcate, and as well as the petals oblong, rather obtuse, wider, subundulate; lip roundish, auriculate, at the base twice shorter than the sepals, with three corrugated tubercles at the base and other lateral dentiform smaller ones; the margins of the tomentose column rounded, convex, incurved. *Lindl.*

Odontoglossum grande, *Lindl. Bot. Reg.* 1840. *Misc.* n. 94. *Batem. Orchid. Guatem. et Mex.* t. 24. *Hook. Bot. Mag.* t. 3955.

One of the very finest of Orchideous plants. Our figure was made from a noble specimen which blossomed in the stove of Syon Gardens. Introduced by Mr. Skinner from Guatemala.

Fig. 1. Column and base of the lip. 2. Pollen-masses. 3. Anther-case:—*magnified.*

2. ODONTOGLOSSUM PULCHELLUM, *Batem.*

Elegant Odontoglossum.

Plate LXXXI.

Pseudo-bulbs oblong, compressed, two-edged, diphyllous; leaves linear, obliquely emarginate at the apex; scape as long as the leaves, two-edged, weak, racemed, six- or seven-flowered; sepals ovate, acute; petals obovate, acute, subundulate; lateral segments of the three-lobed lip triangular, the intermediate one oblong, subquadrate, recurved at the apex, callosity at the base fleshy, hippocrepiform in front, three-lobed behind; wings of the column and clinandrium jagged. *Lindl.*

Oncidium pulchellum, *Batem. in Lindl. Bot. Reg.* 1841. t. 48. *Hook. Bot. Mag.* t. 4104.

A most delicate and elegant plant, well deserving the name Mr. Bateman has appropriated to it. It is a native of Guatemala, introduced, we believe, through the medium of Mr. Skinner: and it flowered in the stove of the Royal Gardens of Kew, in October, 1843.

Fig. 1. Flower, from which the sepals and petals are removed. 2 and 3. Pollen-masses:—*magnified.*

34. BRASSIA, *Br.*

Perianth spreading. *Sepals* and *petals* narrow, free, equal; the latter sometimes smaller. *Labellum* plane, undivided, spurless, continuous with the column, bicristate at the base. *Column* free, apterous, small. *Anther* one-celled. *Pollen-masses* two, furrowed behind; *caudicle* short; *gland* thick.—*Pseudo-bulbous* Epiphytes. Leaves *subcoriaceous.* Scapes *radical, sheathed.* Flowers *showy, spicate. Lindl.*

This genus is named after Mr. William Brass, a collector of plants.

Amongst the several species of this genus, *B. caudata* is probably the most curious, from the extremities of the lower petals growing from four to six inches long, resembling tails, hence the specific appellation; the flowers are a greenish yellow, with large spots of red brown; the labellum is pale yellow, with a few red-brown spots on it. *B. Lanceana* was found by Mr. Lance growing on trees: it is said to be very tender, and to require the hottest and dampest part of the stove. We find it to grow well and flower abundantly both on blocks and in pots of turfy peat well drained; the flowers are light yellow, spotted with brown; the labellum is large, yellow, with a few small spots towards the base; it is very fragrant.

The genus may be grown either in pots on turfy peat well drained, mixed with charcoal and potsherds, or on blocks; the roots should at first be slightly covered with moss: or they may be grown in baskets suspended from the roof of the house. In no instance should the young shoots be suffered to imbibe much water, as they are liable to damp off; they grow freely, and by a judicious separation of the pseudo-bulbs, as before mentioned, are soon induced to become large specimens.

1. BRASSIA CAUDATA, *Lindl.*

Long-tailed Brassia.

PLATE LXXXII.

Sepals ovato-lanceolate, acuminate, lateral ones very long; petals smaller, acute; lip acuminate. *Lindl.*

BRASSIA caudata, *Lindl. Bot. Reg.* t. 832. *Hook. Ex. Fl.* t. 179. *Lindl. Gen. et Sp. Orchid.* p. 212. *Hook. Bot. Mag.* t. 3451.

MALAXIS caudata, *Willd. Sp. Pl.* vol. iv. p. 83.

EPIDENDRUM caudatum, *Linn. Sp. Pl.* p. 1349.

A striking, but now well-known stove-plant, an inhabitant of Jamaica and other West Indian islands; first introduced, we believe, by Mr. Lee of Hammersmith. It is a ready flowerer and continues long in blossom.

Fig. 1. Lip. 2. Pollen-masses:—*magnified.*

2. BRASSIA LANCEANA, *Lindl.*

Mr. Lance's Brassia ; greenish-flowered var.

PLATE LXXXIII.

Sepals ovato-lanceolate, acuminate ; lip oblong, acuminate, waved, twice shorter than the lateral sepals. *Lindl.*

BRASSIA Lanceana, *Lindl. Bot. Reg.* t. 1754. *Hook. Bot. Mag.* t. 3577.

A truly handsome plant, apparently blossoming at different seasons : said to be a native of Surinam (whence it was introduced by Mr. Lance, whose name it bears) and also of the Province of Rio Negro, Brazil.

Fig. 1. Germen, column, and lip :—*magnified.*

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35. MILTONIA, *Lindl.*

Perianth spreading ; *petals* revolute and, as well as the lateral *sepals,* sessile, connate at the base, conformed. *Labellum* very large, dilated, undivided, sessile, slightly connate with the column, lamellate at the base. *Column* very small, semiterete, eared at the base. *Pollen-masses* two, adnate to the oblong *caudicle.—Epiphytal, pseudobulbous* Herbs. Scapes *single-flowered, sheathed, the scales equidistant.* Flowers *very showy. Lindl.*

Dr. Lindley named this genus after Earl Fitzwilliam, a great admirer of *Orchidaceæ.*

Like other beautiful genera of *Orchidaceæ,* the species are few. In *M. spectabilis* the sepals and petals are white, slightly tinged with very pale greenish yellow, delicately stained with purple towards the base ; the labellum is large, bright purple and yellow. In *M. candida* the sepals and petals are yellow, very much blotched with red brown ; the labellum is white, and much curled ; the centre is lightly marked with purple. The difference between this species and *M. candida* var. *flavicans,* consists in the colours being brighter, and the labellum being slightly tinged with pink. In *M. Clowesii* the sepals and petals are a rich yellow, banded and blotched with bright red-brown ; the labellum is white, tinged with purple at the extremity, and deep violet colour at the base ; it is by far the most beautiful of the genus.

The plants of *Miltonia* are easily grown ; they require more heat and moisture than *Cattleya* ; they thrive well in a moist heat, either in pots well drained, or on blocks. We prefer the latter mode of treatment. They require a season of rest to induce them to flower freely, when they must be kept cool and dry.

1. MILTONIA SPECTABILIS, *Lindl.*

Showy Miltonia.

PLATE LXXXIV.

Sepals and petals ovato-lanceolate, acute ; lip very large, broadly obovate, longitudinally plaited, the short claw trilamellate ; column glabrous, hornless.

MILTONIA spectabilis, *Lindl. Bot. Reg. sub fol.* 1976. t. 1992. *Hook. Bot. Mag.* t. 4204.

It was a most just compliment to Lord Fitzwilliam when Dr. Lindley gave to the present plant the generic name it bears. Under his Lordship's auspices Orchidaceous plants were first successfully cultivated at Wentworth by his able gardener, the late Mr. Cooper. A more lovely genus, or a more distinct one, the whole family of *Orchidaceæ* can scarcely boast, and the present species has the advantage of its blossoms remaining a long time in perfection. Native of Brazil, and flowers in August.

Fig. 1. Pollen-masses :—*magnified.*

2. MILTONIA CANDIDA; var. FLAVESCENS, *Lindl.*

White-lipped Miltonia; yellowish var.

PLATE LXXXV.

Sepals and petals lanceolate, acuminate; lip roundish, obsoletely four-lobed, waved; column downy, two-horned at the base.

MILTONIA candida, *Lindl. Bot. Reg.* 1838, *Misc.* n. 29. *Sertum Orchid.* t. 21.

β. column and lip yellowish. *Hook. Bot. Mag.* t. 3793. (TAB. NOSTR. LXXXV.)

This is likewise a native of Brazil. It differs from Dr. Lindley's plant solely in the less purely white colour of the lip and column.

Fig. 1. Lip. 2. Front view, and 3, side view of the column. 4. Anther-case. 5. 5. Pollen-masses, anterior and posterior view :—*magnified.*

3. MILTONIA CLOWESII, *Lindl.*

Mr. Clowes' Miltonia.

PLATE LXXXVI.

Sepals and petals lanceolate, equal, cordate; labellum contracted in the middle, its apex roundish, acute, the base with five unequal, abrupt, quincuncial lamellæ. *Lindl.*

MILTONIA Clowesii, *Lindl. Sertum Orchid.* t. 34. *Hook. Bot. Mag.* t. 4109.

ODONTOGLOSSUM Clowesii, *Bot. Reg.* 1839. *Misc.* n. 152.

A noble species from the Organ Mountains, Brazil, and first flowered by the late Rev. John Clowes, at Broughton Hall, Manchester, in 1839. Our specimen blossomed at Kew in October, 1843.

36. VANDA, *Jones.*

Perianth spreading, patent; *petals* and *sepals* equal. *Labellum* saccate, or obconical-calcarate, continuous with the base of the column, subtrilobed; middle lobe fleshy. *Column* thick, free, abbreviated, the *rostellum* obtuse. *Anther* two-celled. *Pollen-masses* two, obliquely two-lobed; *caudicle* linear; *gland* roundish.—*Epiphytal, caulescent* Herbs. Leaves *distichous, coriaceous.* Spikes *opposite the leaves.* Flowers *specious. Lindl.*

Vanda is the Hindoo name of the original species, hence adopted by Sir William Jones.

This is not a numerous genus; the most showy and beautiful are *V. teres* and *V. tessellata* or *Roxburghii.* The appearance of *V. teres* gives the idea of a plant in a dormant state having dropped its leaves; such is, however, not the case, the stalk-like branches are its leaves. The flower-stems start from the stalk, and produce from four to six flowers; the petals are deep pinkish purple, softening off towards the margin; the sepals are nearly white, very slightly tinged with light purple; the labellum is bright yellow, ending in purple, thickly marked with small carmine spots. *V. tessellata* is generally known as *V. Roxburghii*, and has the sepals and petals heavily blotched with red brown, on a light yellow ground, the outside of both is nearly white; the labellum is light pink ending in rich dark crimson pink. *V. Roxburghii* var. *unicolor* is far less attractive; there is a dull sameness in the muddy light brown colour of the sepals and petals; the labellum is very light yellow, marked with small red spots; the outside of the flowers is nearly white. *V. multiflora* is a strong, free, robust-growing species, with luxuriant foliage; the flowers are not attractive, they are small, yellow, spotted with brown, and grow in clusters on short foot-stalks.

This genus will thrive well in a hot, moist atmosphere, attached to blocks of wood, with the roots covered with moss when first fixed on the blocks, to exclude the light and retain moisture; they may also be grown in baskets in sphagnum. They require a high temperature and a good supply of water while growing; they cannot be better located than over a cistern, in a temperature of 80 degrees. They should then be removed to a cooler and drier situation; without this treatment they will continue to grow, but will not flower well.

1. VANDA ROXBURGHII; var. UNICOLOR.

Dr. Roxburgh's Vanda; whole-coloured var.

PLATE LXXXVII.

Leaves at the apex obliquely tridentate; racemes erect, longer than the leaves; sepals and petals oblong-ovate, waved, obtuse, middle lobe of the lip ovate, emarginate. *Lindl.*

α. tessellata; sepals and petals tessellated. Vanda Roxburghii, *Br. in Bot. Reg.* t. 506. *Sims, Bot. Mag.* t. 2245.

CYMBIDIUM tessellatum, *Willd.—Roxb. Fl. Ind.* vol. iii. p. 462.

EPIDENDRUM tessellatum, *Roxb. Pl. Corom.* vol. i. p. 42.

β. unicolor; sepals and petals of the same colour. *Hook. Bot. Mag.* t. 3416. (TAB. NOSTR. LXXXVII.)

Native of the East Indies, as is the type of the species, *α. tessellata*, from which it differs in the uniform colour of the sepals and petals.

Fig. 1. Side view of the column and lip. 2. Front view of the same:—*magnified.*

2. VANDA TERES, *Lindl.*

Quill-leaved Vanda.

PLATE LXXXVIII.

Leaves terete, obtuse; racemes two- or many-flowered, longer than the leaf; sepals and petals suborbicular, a little waved, patent; lip deeply three-lobed, pubescent within, with a conical spur at the base; lateral lobes incurved, intermediate one patenti-reflexed, dilated at the apex and two-lobed.

VANDA teres, *Lindl. Gen. et Sp. Orchid.* p. 217. *Bot. Reg.* t. 1809. *Hook. Bot. Mag.* 4114.

Nothing can exceed the beauty and delicacy of the blossoms of this plant, as they appear in the Orchidaceous House of the Royal Gardens of Kew, (where our drawing was made,) continuing as they do in great perfection for several weeks. It is, perhaps, the most lovely of its tribe, and deficient only in foliage, which here can scarcely be distinguished from the stem, either in form or colour. It is a native of trees in Sylhet, where it was discovered by Dr. Wallich, who introduced it into our gardens; and of the Burmese Empire, where the late Mr. Griffith detected it.

Fig. 1. Column and section of a lip. 2. Column with the anther-case laid back:—*magnified.*

37. AERIDES, *Lour.*

Perianth patent or closed. Lateral *sepals* often oblique at the base, connate with the produced base of the column. *Labellum* articulated upon the claw of the column, saccate or calcarate, three lobed; lateral *lobes* small; *limb* cucullate or subulate, or abbreviate and tumid or subfornicate. *Column* recumbent upon the ovary, short, wingless. *Anther* two-celled. *Pollen-masses* two, sulcated behind; *caudicle* broad or filiform; *gland* peltate, subrotund.—*Epiphytal, caulescent* Herbs. Stems *nearly simple, rooting.* Leaves *distichous, coriaceous or nearly fleshy.* Flowers *racemose or spicate. Lindl.*

From *aër*, the air; the individuals deriving their nourishment from the moisture of the atmosphere.

This genus is said to be a numerous one, though many species have not as yet been introduced. The flowers of *Ae. odoratum* or *cornutum*, are nearly white, slightly tinged with pink, on a drooping raceme from eight to twelve inches long; it is, from its perfume, in the East Indies, called the Jamaica Pomatum-plant, from the unguent of that name. *Ae. quinquevulnera*: the sepals and petals are whitish green, slightly speckled with purple, with a dark purple stain at the apex; the labellum is pale pink, spotted with purple and deep crimson at the end; the spur is green. This species has a delicious perfume. *Ae. Brookii* or *crispum*: the flowers are large and nearly white, delicately tinged with light pink; the labellum is large, yellow, slightly marked with crimson and deep pink. The flowers are lovely, and emit a most superior fragrance; they remain in perfection for a long time if kept cool. *Ae. virens*: the foliage of this species is dark green; the sepals and petals are white, with a purple spot near the tip, and faintly stained with lilac; the labellum is crimson lilac, with bright crimson spots. *Ae. maculosum* is probably the most showy of the genus; the sepals and petals are bright pink, spotted with dark red; the labellum is dark, rich pink, slightly marked with yellow.

The beauty of the flowers, their perfume, and the rich foliage of all this genus, render them the most desirable of plants, and no collection should be without them. They require the same treatment as the genus *Vanda.*

1. AERIDES ODORATUM, *Lour.*

Fragrant Air-plant.

Plate LXXXIX.

Leaves flaccid with the apex obtuse and oblique; racemes pendulous, many-flowered, longer than the leaves; lateral segments of the infundibuliform cucullate lip erect, cuneate, roundish, intermediate one ovate, acute, inflexed; spur incurved. *Lindl.*

Aerides odoratum, *Loureiro, Fl. Cochin.* p. 525. *Br. in Hort. Kew*, ed. 2. vol. v. p. 212. *Lindl. Gen. et Sp. Orchid.* p. 239. *Hook. Bot. Mag.* t. 4139.

Aerides cornutum, *Roxb. Hort. Beng.* p. 63. *Lindl. Bot. Reg.* t. 1485.

One of the many lovely Orchidaceous plants of the East Indies, no less remarkable for the elegance of its flowering spikes than for their fragrance. Loureiro first detected it in China and Cochin China, and upon it founded the genus *Aerides*. It was introduced to the Royal Gardens of Kew by Sir Joseph Banks from China, as long ago as 1800, and has been since sent from Dacca and Sylhet in the East Indies by Drs. Roxburgh and Wallich. It flowers during the summer months.

Fig. 1. Column and lip :—*magnified.*

38. RENANTHERA, *Lour.*

Perianth patent; *sepals* nearly equal, linear-spathulate, two superior much larger, waved, unguiculate. *Labellum* sessile, small, bituberculate, below conico-saccate, three-lobed; lateral lobes erect, roundish; intermediate one acute, reflexed, constricted at the base. *Ovary* straight. *Column* short, wingless. *Anther* operculate, obtuse, deciduous, pseudo-bilocular. *Pollen-masses* two, two-lobed behind, pedicellate; *pedicel* broadly membranaceous; *gland* large.

From *ren*, a *kidney*, and *anthera*, an *anther*; in allusion to the kidney-shape of the pollen-masses.

There are few of this genus known, and *R. coccinea* is far the best. The sepals are scarlet, blotched irregularly with a deeper colour; the petals are scarlet marked with yellow bands; the labellum is small, and yellow marked with dark scarlet. *R. matutina* is a much inferior species; the flowers are small, brown and yellow. They both continue in flower for a long time. They are very difficult to make flower, nor does there appear to be any decided mode of treatment to insure it. The plant grows freely. Throughout the winter the plants should be kept cool and dry; early in spring they should be placed in a temperature between the stove and greenhouse in an airy situation; the object is to cause them to make short joints. They should be placed near the glass, and after three or four months the water should be gradually decreased; they will mature their growth, and when brought into heat and moisture again will probably flower.

1. RENANTHERA COCCINEA, *Lour.*

Scarlet Renanthera.

Plate XC.

Renanthera coccinea, *Lour. Fl. Cochin.* vol. ii. p. 637. *Lindl. Bot. Reg.* t. 1131. *Hook. Bot. Mag.* t. 2997 and 2998.

This splendid plant inhabits woods in Cochin China and China, and is cultivated in the latter country on account of the richness of the colour of the blossoms. Our drawing was made from a plant which blossomed at Wentworth in 1827.

Fig. 1. Upper part of a panicle and portion of the stem and leaves :—*natural size.*

39. SACCOLABIUM, *Lour.*

Perianth spreading, patent. *Sepals* and *petals* equal; the lateral ones often larger. *Labellum* undivided, spurred, acrete with the base of the column. *Column* erect, semiterete, with a subulate *rostellum. Anthers* sub-bilocular. *Pollen-masses* two; *caudicle* elongated; *gland* minute.—*Epiphytal, East Indian, caulescent* Herbs. Leaves *distichous, coriaceous, often oblique at the apex.* Flowers *axillary, racemose or solitary. Lindl.*

From *saccus*, a *bag*, and *labium*, a *lip*; all the genus having the labellum pouch-shaped.

Amongst the several species of this genus, the following are best worth cultivating. The sepals and petals of *S. Blumei* have a streak of bright violet below the apex; the labellum, except the tip, which is white, is deeply stained with violet. *S. guttatum* is a very beautiful and showy plant with rich foliage, and a pendulous flower-stem from twelve to fifteen inches long. The sepals and petals are white, slightly tinged with pink, and marked with rose-coloured spots; the labellum is rosy purple; it is devoid of perfume. *S. ampullaceum*: the flowers of this delicate species are a bright rose colour; the column is yellow; the flower-stems are considerably shorter than those of *guttatum,* taken altogether it is a much inferior species. *S. præmorsum* is a much finer species than *guttatum,* to which it bears some resemblance; the flowers are white, beautifully blotched with rosy lilac.

The foliage of all the species is a rich dark green. They are true epiphytes, and resemble the genus *Vanda*; they require the same treatment, and grow best on large upright blocks of wood. They require a hot damp atmosphere, and occasional syringing over head, with a less humid and cooler treatment when at rest.

1. SACCOLABIUM GUTTATUM, *Lindl.*

Spotted Saccolabium.

PLATE XCI.

Leaves long, channelled, unequal, truncated, arcuate, equalling the cylindrical, dense-flowered, arcuate racemes; compressed spur of the lip truncato-conical, downy within; lamina lanceolate, inflexed, subcostate on the back; capsules oblong, hexagonal. *Lindl.*

SACCOLABIUM guttatum, *Lindl. in Wall. Cat.* n. 7308. *Gen. et Sp. Orchid.* p. 220. *Hook. Bot. Mag.* t. 4108.

SACCANTHUS guttatus, *Lindl. Bot. Reg.* t. 1443.

EPIDENDRUM retusum, *Linn. Sp. Pl.* p. 1351.

Dr. Lindley has justly remarked of this plant, "species pulchrior omnibus." Nothing can exceed the delicacy and texture of the raceme of flowers: and Dr. Roxburgh observes that they are not inferior in beauty to any of the whole family of *Orchidaceæ*. The species was introduced at Kew before 1820, when it first produced its lovely blossoms in Europe.

Fig. 1. Front view of a flower. 2. Side view of the column and lip. 3. Pollen-masses:—*magnified.*

40. ANGRÆCUM, *Pet. Th.*

Perianth patent. *Sepals* and *petals* subequal, free. *Labellum* sessile, continuous with the base of the column, fleshy, undivided, much wider than the petals; *spur* straight, horn-like, often subcylindrical, much longer than the

perianth, rarely obconical. *Column* sometimes nearly terete, rarely elongated, semiterete. *Anther* two-celled, truncated. *Pollen-masses* two, bipartible; *caudicle* short, narrow; *gland* triangular.—*Caulescent* Epiphytes. Leaves *coriaceous, ligulate, oblique at the apex.* Flowers *solitary or racemose, white, sometimes citron-coloured, or herbaceous. Lindl.*

From *angrec,* the Malay name.

There are several species of this genus, but for the most part the flowers are of little interest. They thrive well in a hot and very moist stove, attached to blocks of wood; or they may be treated in pots in fibrous peat and sphagnum, well drained.

1. ANGRÆCUM APICULATUM, *Hook.*

Apiculated Angræcum.

PLATE XCII.

Stem short, rooting; leaves distichous, obovato-lanceolate, obliquely acuminate, opaque, striated, much shorter than the pendulous, smooth (without warts), many flowered raceme; sepals and petals lanceolate, patent, rather longer than the conformed lip, shorter than the filiform entire spur; crest of the anther without gland.

ANGRÆCUM apiculatum, *Hook. Bot. Mag.* t. 4159.

From Sierra Leone, and introduced to our gardens by Mr. Whitfield in 1844. Allied to *A. bilobum* (Lindl. Bot. Reg. 1841, t. 35); but this latter has semipellucid, reticulated leaves, distinctly and deeply two-lobed at the extremity (whence the specific name); the rachis of the raceme and peduncle are warty, and the spur is dilated and emarginate at the apex. In other respects the two plants seem entirely to agree.

Fig. 1. Column and spur:—*natural size.* 2. Front view of the column and anther. 3. Pollen-masses:—*magnified.*

41. CALANTHE, *Br.*

Perianth spreading, nearly equal, free, or with the lateral *sepals* a little adnate with the lip. *Labellum* connate with the column, lobed or entire, calcarate or spurless, lamellated or tuberculated on the disk. *Column* short, with the rostellum often beaked. *Pollen-masses* eight, much attenuated at their base, adhering by fours to a bipartite *gland.*—*Terrestrial,* scapes *erect, many-flowered.* Leaves *broad, plaited.* Flowers *white, or lilac, rarely yellow. Lindl.*

From καλὸς, *beautiful,* and ἄνθος, a *flower.*

The species best worth growing are *C. bicolor, flavicans, Masuca,* and *veratrifolia.* The blossoms of the last species are pure white, and the plant requires to be cultivated in a light, airy part of the house; for it is apt to damp off or turn yellow when kept in too moist an atmosphere. The several species thrive remarkably well in the common stove amongst other plants. They should be vigorously grown to insure their flowering well; and should be potted in sufficient sized pots to give the roots full room, in turfy loam, leafy mould, a little very rotten dung, and chopped sphagnum, well drained. Being Orchidaceous, they need not be raised in the pots. The most proper period to pot them, is when they are starting into growth. At first they should only receive a very moderate supply of water, but it must be increased as the shoots and roots grow. They will require a very moderate supply of moisture during the winter.

1. CALANTHE VERATRIFOLIA, *Br.*

Helebore-leaved Calanthe.

PLATE XCIII.

Scape straight, longer than the oblong acute leaves; bracteas oblong, concave; racemes dense, many-flowered; lip four-lobed, sulcate and glandulose at the base; spur filiform, pendulous, a little shorter than the lip. *Lindl.*

CALANTHE veratrifolia, *Br. in Bot. Reg.* t. 720. *Hook. Bot. Mag.* t. 2615.

LIMODORUM veratrifolium, *Willd. Sp. Pl.* vol. iv. p. 122.

FLOS triplicatus, *Rumph. Amb.* vol. vi. p. 115. t. 52. f. 2.

Native of the East Indies, and one of the few terrestrial Orchidaceæ of the group of *Epidendreæ*. Requires to be kept in a stove where a well-grown plant makes a striking appearance in the spring months, when it continues long in blossom.

TRIBE IV. OPHRYDEÆ, *Lindl.*

Pollen cohering in numerous cereaceous grains, united in two masses by means of an elastic arachnoid axis, which is agglutinated to the gland of the stigma. Anther terminal, erect, or resupinate, persistent, the cells complete. Terrestrial, tuberous. Lindl.

42. HABENARIA, *Willd. Br.*

Perianth ringent, three or five *sepals* connivent and galeate. *Labellum* spurred or subsaccate at the base beneath. *Anther* terminal, with the cells adnate, with the bases sometimes apart, elongated. *Pollen-masses* pedicellate, pedicels each of them inserted at the base into a corresponding gland. *Br.* (Habenaria and Platanthera, *Rich*, *Lindl.*)

From *habena*, a *rein* or *strap*; in consequence of the usually long strap-shaped spur.

The flowers of this genus do not possess much beauty; they are generally of a whitish green colour. *H. gigantea* is very fragrant.

There are several species of this genus, many of which are hardy, and require to be protected from frost or heavy rains in the open border. The stove species grow best in a mixture of leaf mould, peat, and sand, in a moist stove, in pots well drained. When the leaves begin to decay, water should be withheld, and the roots finally placed in a cool situation until they again vegetate; they should then be repotted.

1. HABENARIA GIGANTEA, *Don.*

Gigantic Habenaria.

PLATE XCIV.

Tubers undivided; lip bipartite; lateral lobes curved upwards, pectinated, intermediate standing forward, linear-spathulate; spur very long; petals linear-falcate.

Habenaria gigantea, *Don, Prodr.* p. 24. *Hook. Bot. Mag.* t. 3374.

Orchis gigantea, *Sm. Ex. Bot.* t. 100.

Platanthera gigantea, *Lindl. in Wall. Cat.* n. 7054.

The finest of all the *Habenariæ,* and we here adopt Mr. Brown's views of the limits of that genus. It is a native of the East Indies, and if the *Orchis Susannæ* of Linnæus (*Flos Susannæ,* Rumph. Amb. vol. v. t. 99. f. 2), as seems more than probable, of the Malay islands also. Our figure was made from a noble plant which flowered at the Glasgow Botanic Garden, having been received there from Bombay, by favour of Joseph Nimmo, Esq. As with our own European species of *Ophrydeæ* it seems very difficult to keep this in cultivation for more than two or three years.

Fig. 1. Lower leaf:—*natural size.* 2. Lip and part of the spur. 3. Column with the anther. 4. Pollen-masses:—*magnified.*

43. BONATEA, *Willd.*

Perianth and *anther* as in *Habenaria. Stigma* with the upper lip (*rostellum*) free, elongated, cucullate or complicate. Fleshy *stigmatic processes* two, sometimes very long, sometimes abbreviated.—*Habit of* Orchis *and* Habenaria. *Lindl.*

Called after *M. Bonato,* Professor of Botany at Padua.

B. speciosa is the only plant of this genus known. The flowers do not possess any beauty, though their formation is curious; they are light green and white, and are slightly fragrant. It will thrive with the same treatment as the stove species of *Habenaria* require.

1. BONATEA SPECIOSA, *Willd.*

Showy Bonatea.

Plate XCV.

Stem leafy; leaves oblong, somewhat waved, loosely sheathing; raceme many-flowered, compact; bracteas membranaceous, cucullate, acuminate, as long as the ovary; flowers galeate; petals bipartite, linear-lanceolate, as long as the galeate anterior laciniæ, adnate with the lip; lip tripartite with the segments linear, acuminate, convex, waved, revolute at the apex; rostellum ciliated, fleshy processes spathulate, canaliculate, obtuse, as long as the sepals; spur filiform, pendulous, equal to the lip in length. *Lindl.*

Bonatea speciosa, *Willd. Sp. Pl.* vol. iv. p. 43. *Hook. Bot. Mag.* t. 2926. *Lindl. Gen. et. Sp. Orchid.* p. 327.

Orchis speciosa, *Linn. Suppl. Syst. Nat.* p. 401. *Thunb. Fl. Cap.* vol. i. p. 27.

A Cape species more easily cultivated than most terrestrial *Orchidaceæ.* It has flourished at the Royal Gardens of Kew for many years in a small tub of peat-mould, kept moist and in the greenhouse, and produces its blossoms annually in the spring.

Fig. 1. Flower from which the sepals are removed. 2. Column and anther. 3. Section of the column and base of the spur. 4. Anther and stigma. 5. Pollen-masses:—*magnified.*

44. DISA, *Linn.*

Perianth ringent. *Sepals* free, equal, intermediate one galeate, and calcarate or saccate. *Petals* smaller, erect, adnate with the base of the column. *Labellum* free, filiform or dilated, entire or multifid. *Column* bipartite. *Anther* two-celled, erect or supine, the two glands distant and naked. *Stigma* truncated or convex, obscurely three-lobed on the disk, often tuberculiform, placed at the base of the column. *Seeds* in many species (in all?) black, crustaceous, shining, adherent with the testa at the apex, at the base alone free.—*Terrestrial Cape* Herbs, *various in habit; the* scape *terminal, one- or many-flowered. Lindl.*

We find twelve species of this genus, from the Cape of Good Hope, noted. The brilliant scarlet flowers of *D. grandiflora* and the pale transparent blue of *D. cornuta* will insure them a favourable reception in every collection. The genus requires no more heat than that of the greenhouse, and the same treatment as *Habenaria.*

1. DISA GRANDIFLORA, *Linn.*

Large-flowered Disa.

PLATE XCVI.

Stem leafy, about two-flowered; leaves linear-lanceolate; sepals broadly ovate, acute, very large, upper one galeate, having a shortish pendulous spur above the base; petals obliquely ovate, small; lip minute, lanceolate. *Lindl.*

DISA grandiflora, *Linn. Suppl.* p. 406. *Thunb. Fl. Cap.* ed. 2. p. 7. *Lindl. Bot. Reg.* t. 926. *Hook. Bot. Mag.* t. 4073. *Sertum Orchid.* t. 49. *Gen. et Sp. Orchid.* p. 347.

Of all described terrestrial *Orchidaceæ,* this is unquestionably the most beautiful, the well-known "Pride of Table Mountain," where Dr. Harvey assures us that every stream is literally bordered with it in the month of March. It is every now and then imported from the Cape, but hitherto found difficult to cultivate and impossible to increase. Those who desire to cultivate the plants successfully should study the remarks of Sir John Herschel given in the Botanical Magazine above quoted.

Fig. 1. Pollen-mass. 2. Upper side of the column and lip. 3. Back view of the same:—*magnified.*

2. DISA CORNUTA, *Sw.*

Horned Disa.

PLATE XCVII.

Leaves lanceolate, erect, cucullate at the base; spike many-flowered; bracteas oblong-lanceolate, longer than the flowers; sepals oblong, orbiculate; galea orbicular, produced into a funnel-shaped spur; petals falcate, supine, auricled at the base; lip minute, oblong, obtuse, velvety. *Lindl.*

DISA cornuta, *Sw. Gen. et Sp. Orchid.* p. 26. *Thunb. Fl. Cap.* p. 7. *Lindl. Gen. et Sp. Orchid.* p. 349. *Hook. Bot. Mag.* t. 4091.

ORCHIS cornuta, *Linn. Sp. Pl.* p. 1330.

This wants the size and brilliancy of the *D. grandiflora,* yet is very pretty from the mixture of green, white, and purple in the flowers, and it is equally an inhabitant of the Cape.

Fig. 1. Flower, with the sepals removed. 2. Front view of the same:—*magnified.*

TRIBE V. NEOTTIEÆ, *Lindl.*

Pollen pulvereous, fixed to the glandule of the stigma by loosely cohering granules. Anther parallel to the stigma, persistent, the cells approximate.—Terrestrial plants, caulescent or rarely stemless, with fibrous, fasciculate, tuberous or bulbous roots. Lindl.

45. ANOECHTOCHILUS, *Bl.*

Perianth ringent. Uppermost *sepals* united with the petals and galeate; lateral ones spreading, unequal at the base and there placed beneath the labellum. *Labellum* connate with the base of the column, ventricoso-calcarate, the claw rigid, grooved, canaliculate, inflexed, fimbriated, the limb patent, two-lobed. *Column* short, with the margins membranaceous, dilated, involute, forming a bilamellate appendage. *Stigma* bicallous at the base. *Pollen-masses* two, pulvereous, somewhat two-lobed; *caudicles* short; *gland* oblong.—*Tropical Asiatic* Herbs, *with the* root *fibrous;* rhizoma *filiform, underground.* Stems *leafy.* Leaves *nerved, two-coloured, veins often bright gold.* Flowers *spiked, rather lax, glanduloso-pilose. Blume.*

From ἀνοικτὸς, *open*, and χεῖλος, a *lip*.

This beautiful and curious plant is especially valuable for the rich gold tracing over its dark-green velvety foliage; the flower is of no beauty, having much resemblance to that of *Goodyera discolor*. The sepals are green tinged with red; the petals and labellum are white. It is a plant very difficult to keep. It succeeds best in a pan of heath mould and leaf mould, covered with hypnum moss, under a bell glass, which must be daily wiped dry. *A. argenteus* resembles *setaceus*, except that the tracing on the leaves has a silvery appearance.

1. ANOECHTOCHILUS SETACEUS, *Bl.*

Fringed Anoectochilus.

PLATE XCVIII.

Somewhat creeping; leaves ovate, velvety, reticulated with gold, discoloured; sepals externally and ovary glanduloso-hirsute, lip with a long fringe on each side, the apex two-lobed, the lobes oblong, obtuse, patent; spur of the lip bifid at the point.

ANOECHTOCHILUS setaceus, *Blume, Bijdr.* vol. i. p. 412. *Lindl. Bot. Reg.* t. 2010. *Hook. Bot. Mag.* t. 4123.

CHRYSOBAPHUS Roxburghii, *Wall. Tent. Fl. Nep. t.* 17.

FOLIUM petiolatum, *Rumph. Amb.* vol. vi. p. 23. t. 41. f. 2.

One of the most exquisitely beautiful of all plants in the hue and marking of the leaves, not to be successfully imitated by art. Their colour is a rich velvety dark green, tinged with copper, and over that appears to be laid a delicate golden net-work; the underside is quite different, partaking of a reddish tinge, with obscure yellow veins; but all that is most beautiful is exposed to view. The plant is a native of damp shady woods, among moss and decayed leaves, in Amboyna, Java, Ceylon (in the latter country it is familiar to the natives under the name of "King-plant"), and also in Sylhet and Nepal.

Fig. 1. Flower. 2. The same with the galea removed. 3 and 4. Column. 5. Pollen-masses:—*magnified.*

TRIBE VI. ARETHUSEÆ, *Lindl.*

Pollen-masses pulvereous, or formed of angular granules fixed at or below their base. Anther terminal, opercular.—Terrestrial, stemless or caulescent, with the roots fibrous or bulbous. Lindl.

46. PTEROSTYLIS, *Br.*

Perianth ringent. *Sepals* elongated at the apex, attenuated and muticous, the intermediate one galeate. *Petals* agglutinated to the galea and conformed. *Labellum* unguiculate, subincluded; *limb* narrow, muticous, with a fimbriated or entire appendage at the base, the *claw* adnate with the sepals. *Column* elongated, arcuate, semiterete, winged at the apex with petaloid auricles. *Anther* persistent, with the cells approximate. *Pollen-masses* four, compressed. Lower *lip* of the *stigma* in the middle of the column, connected with the superior, situated under the anther, by means of a slender channel.—Leaves *membranaceous, sometimes radical and stellated, sometimes clothing the one- or many-flowered* stem; *sometimes altogether wanting.* Flowers *with green veins.* Labellum *often irritable. Lindl.*

From πτερον, a *wing*, and στυλος, a *style* or *column.*

This is rather a numerous genus of Orchideous plants from New Holland, requiring no greater heat than a greenhouse. The species grow well potted in a mixture of equal parts of loam, peat, and silver sand. They do not require much water, and when at rest the roots should be kept dry. There is nothing striking in the flowers of any of the genus. They are a pale yellow-green colour.

1. PTEROSTYLIS CONCINNA, *Br.*

Neat Pterostylis.

PLATE XCIX.

Radical leaves stellate; scape bracteated; the emarginate included lamina of the labellum equal in length with the column.

PTEROSTYLIS concinna, *Br. Prodr. Nov. Holl.* vol. i. p. 326. *Hook. Bot. Journ.* vol. i. p. 274. t. 136. *Bot. Mag.* t. 3400.

This graceful little terrestrial Orchideous plant is, like the majority of this remarkable genus, a native of the vicinity of Port Jackson, where it was discovered by Mr. Brown, and was introduced to the Royal Gardens of Kew by Allan Cunningham in 1828.

Fig. 1. Front view of a flower. 2. Back view of ditto. 3. Side view of the column and lip. 4. Front view of the upper part of the column.

TRIBE VII. CYPRIPEDIEÆ, *Lindl.*

Stamens three, of which the lateral ones are fertile; intermediate sterile, petaloid. Pollen granulose, at length deliquescing into a liquid mass. Style nearly free. Stigma divided into three areolæ opposite the stamens. Lindl.

47. CYPRIPEDIUM, *Linn.*

Perianth patent. Lateral *sepals* connate or distinct, inserted beneath the labellum. *Petals* free, often narrower. *Labellum* inflated, with the margin on each side auriculate, inflexed. *Column* minute. *Stamens* three, of which the central one is dilated, inflexed, and the lateral ones are fertile. *Anthers* concealed under the sterile stamen, roundish, two-celled. *Pollen* liquid-granular. *Style* nearly free, terete, terminated by the disciform *stigma.—Terrestrial* Herbs *of the old and new world, flourishing from the Equator almost to the Arctic circle.* Leaves *radical or cauline, coriaceous, or plaited.* Flowers *solitary, racemose or panicled, showy. Lindl.*

From Κύπρις, *Venus,* and ποδιον, a *slipper.*

The individuals of this genus are all hardy, with the exception of *C. insigne* and *venustum,* which require the heat of the stove. The hardy species thrive well in a warm border in sandy peat, and must be protected from rain or frost. They may also be grown in pots in a cold frame. When the foliage dies down, the roots should be kept dry until they commence again to vegetate.

1. CYPRIPEDIUM MACRANTHUM, *Sw.*

Large-flowered Lady's Slipper.

PLATE C.

Lobe of the column elongato-cordate, perianth shorter than the lip, which has a contracted crenulate mouth; anthers awned at the back; stem leafy; leaves nearly glabrous.

CYPRIPEDIUM macranthum, *Sw. Gen. et Sp. Orchid.* p. 103. *Hook. Bot. Mag.* t. 2938.

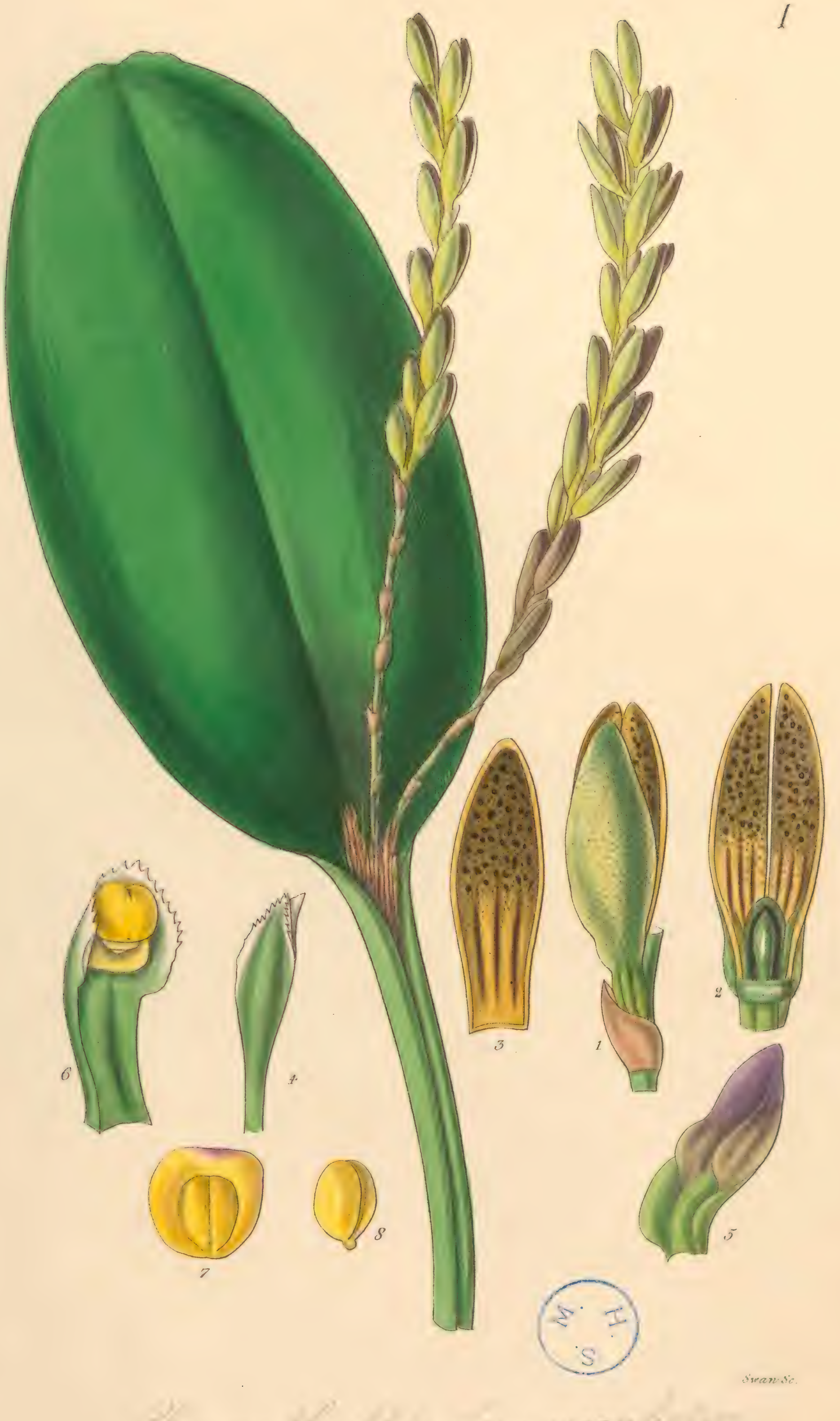
CALCEOLUS γ.; petalis nectario æqualibus aut minoribus, *Gmel. Sib.* vol. i. p. 2. t. 1 γ.

Frequent in all Siberia within the 58th degree of latitude, growing in open places, or in woods composed of scattered Birches, particularly abundant about Tobolsk. Introduced by Dr. Fischer to the Botanic Garden of Glasgow, where it blossomed in a cool frame in 1829.

Fig. 1. Perianth, from which the labellum, fig. 2, is removed. 3. Back view of the column. 4. Front view of ditto. 5. Side view of ditto:—*slightly magnified.* Fig. 1, 2, and 3, are represented of the *natural size.*

Reeve, Benham, and Reeve, Printers, King William Street, Strand.

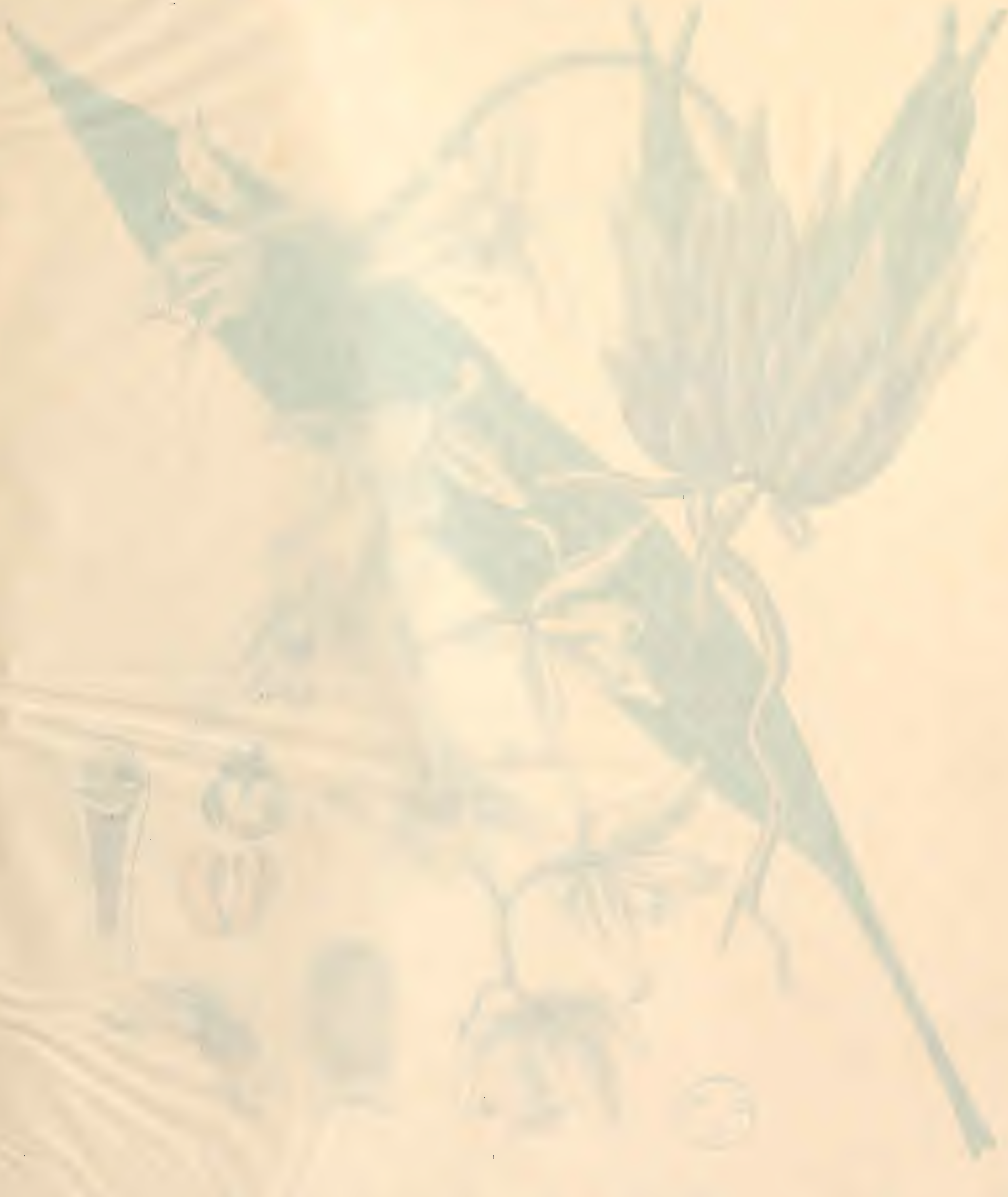
I ✓

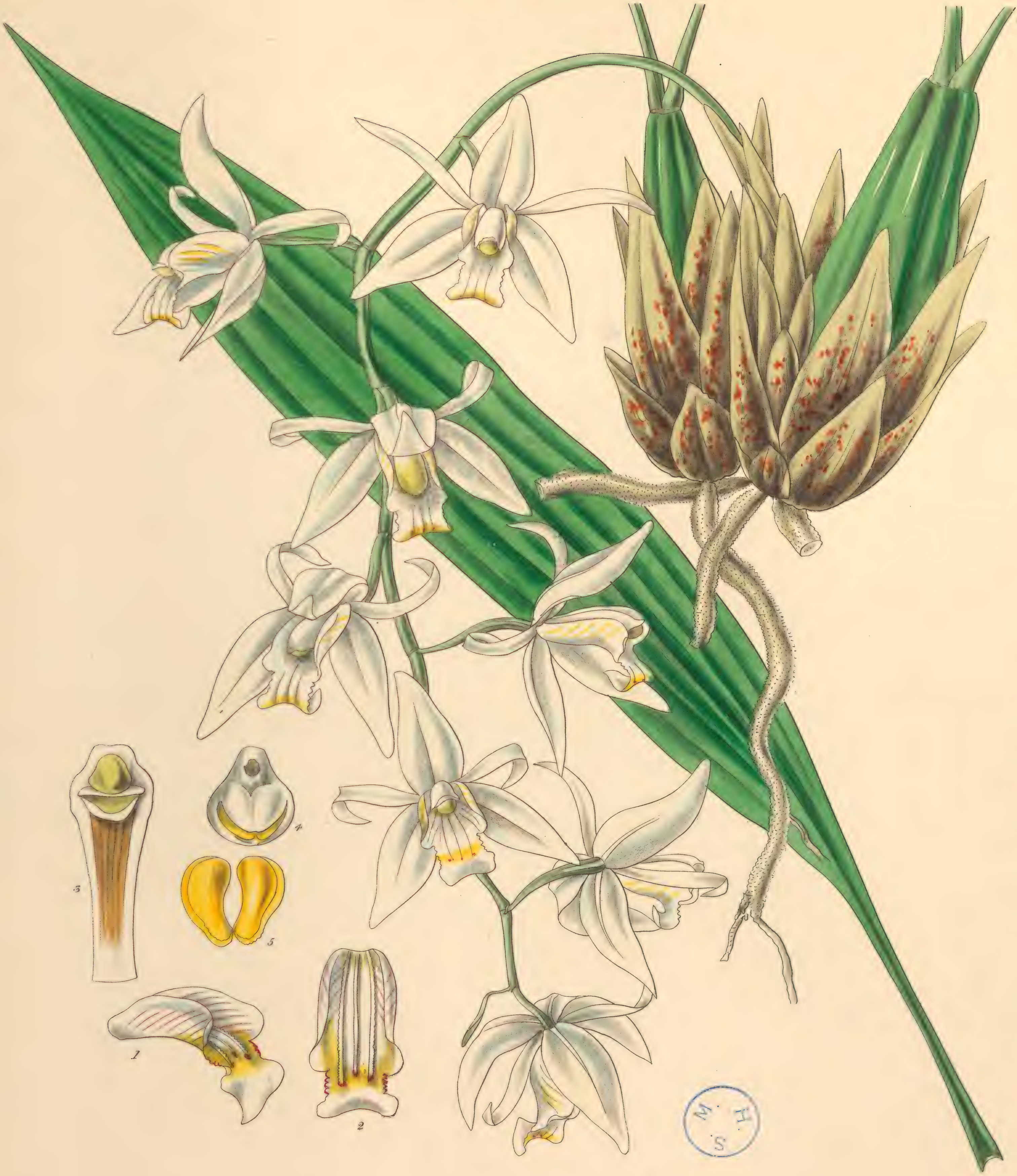


M. H. S.

Swan Sc.

Pleurothallis? macrocephala
[illegible]





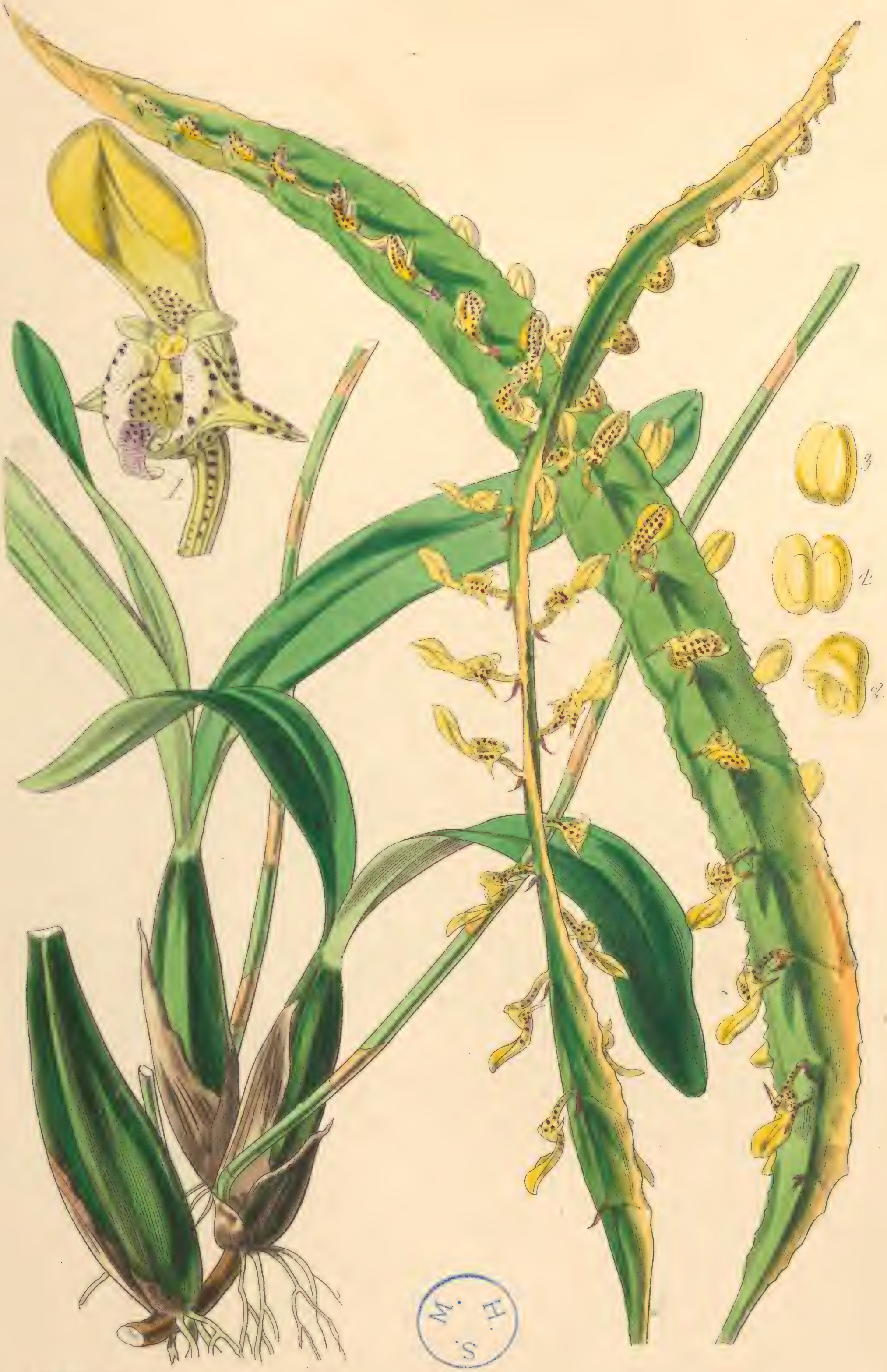
M. H. S.

W. J. H. del.ᵗ

Coelogyne flaccida Lindl.

Swan

III

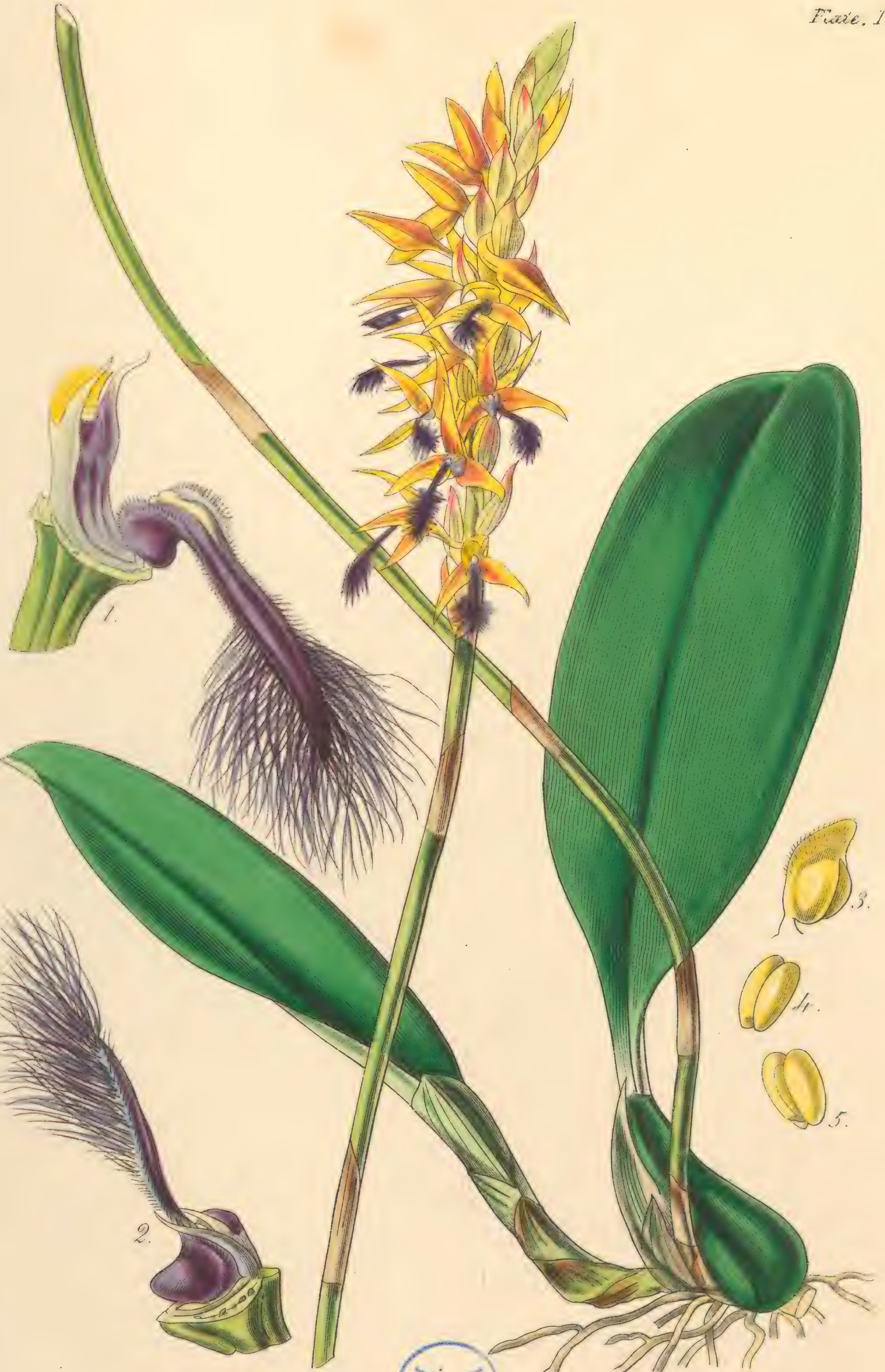


W Fitch Del.

M. H. S.

Megaclinium maximum
(Lindl.)

Plate. IV V

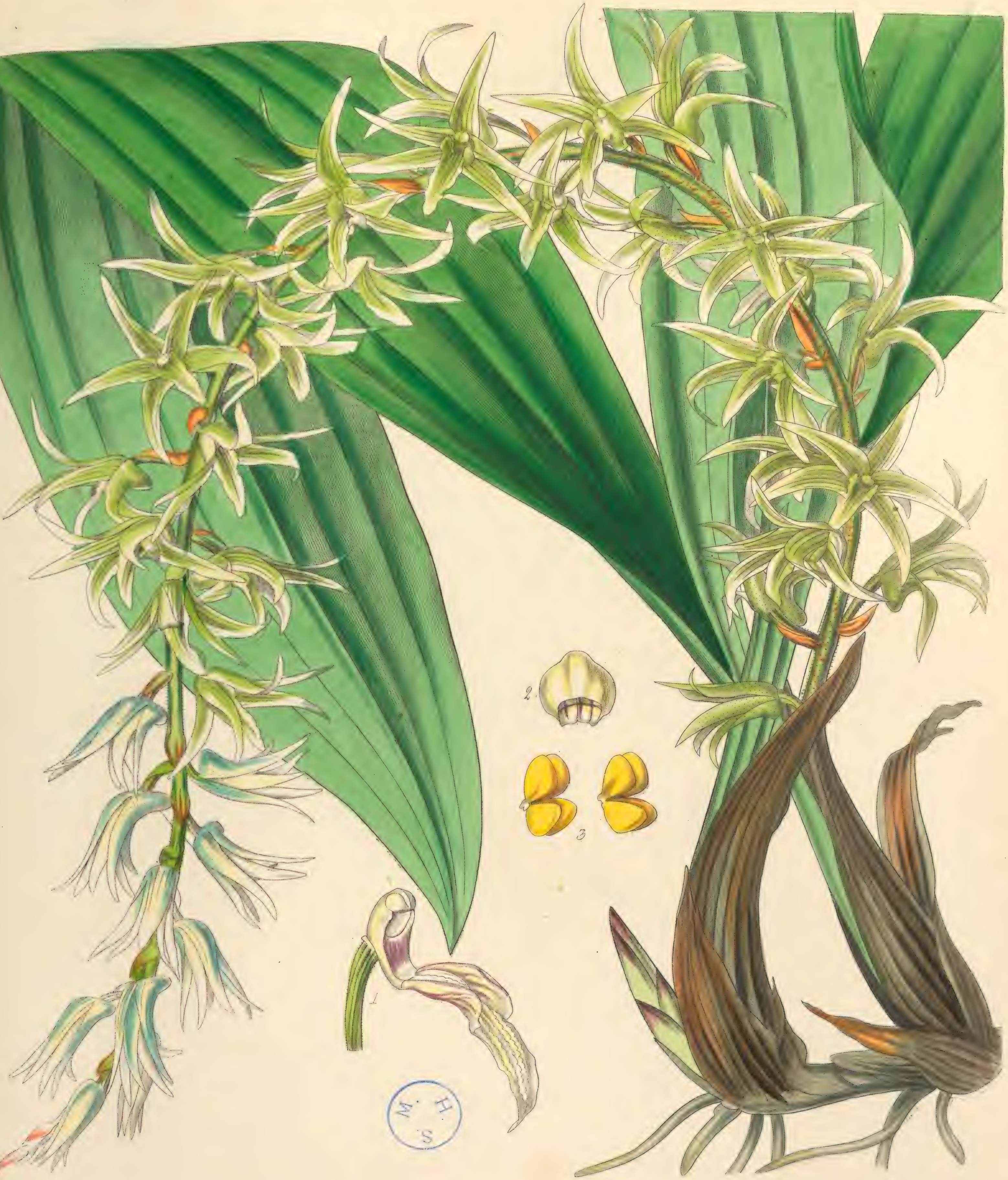


W. Fitch del.

M. H. S.

Bolbophyllum calamarium
(Lindl.)

5 4



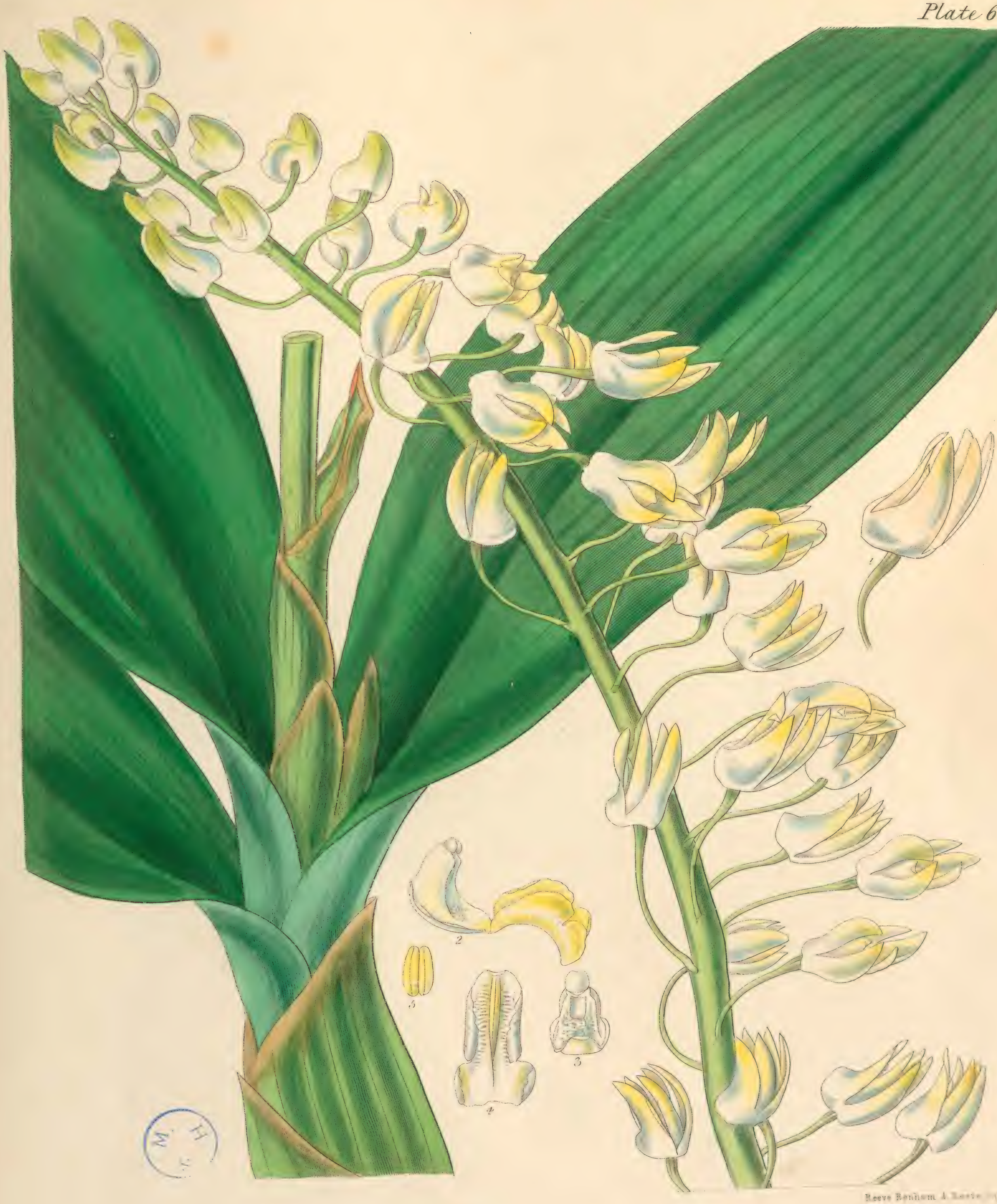
M. H. S.

Fitch del.

Eria stellata
(Lindl.)

Plate 4

Plate 6.



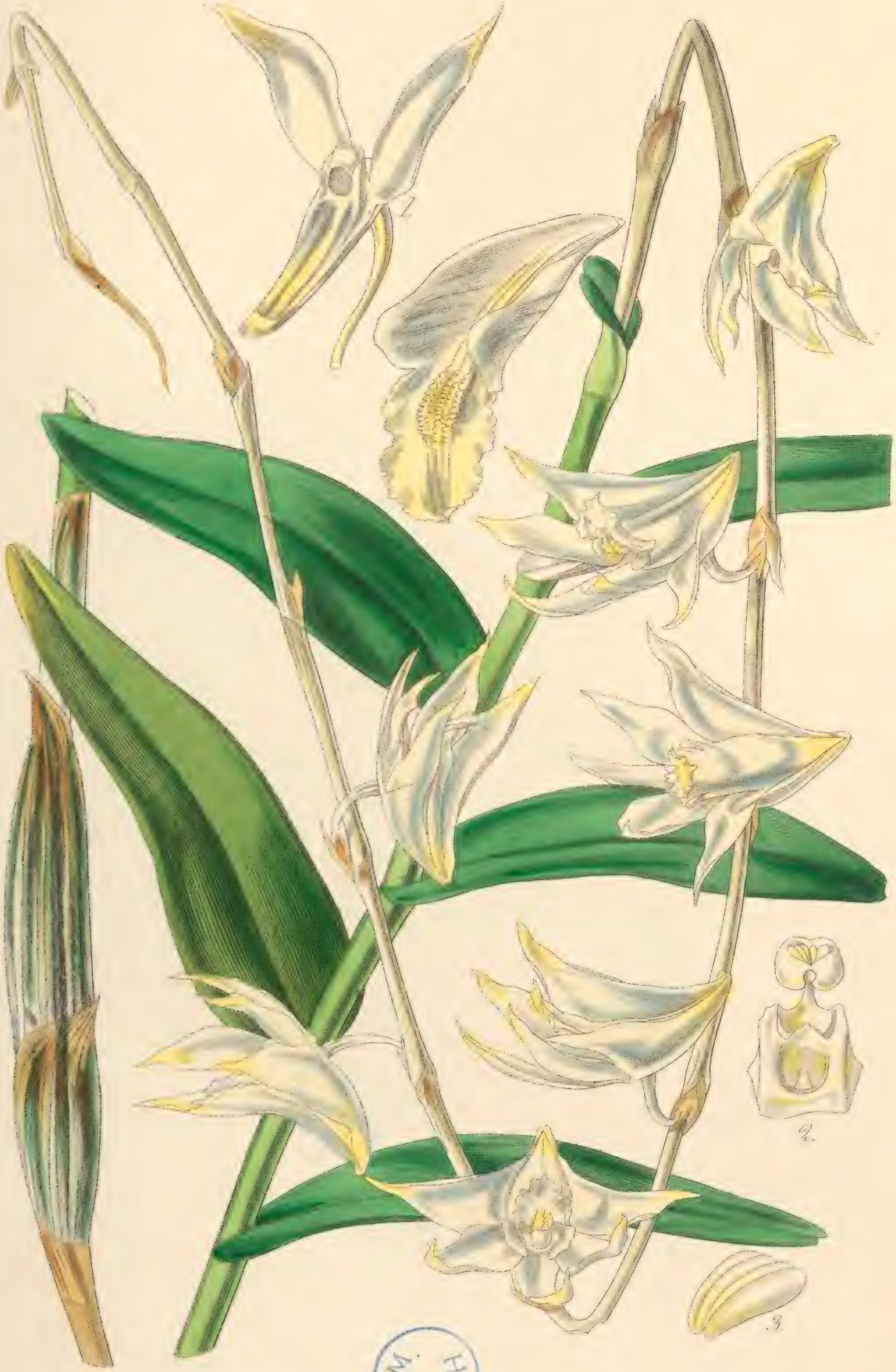
M. H.

Reeve Benham & Reeve imp.

Dendrobium speciosum.

Plate 1.

Plate 7. √



M. H. S.

Reeve, Benham & Reeve, imp

Dendrobium crumenatum.

Plate 3

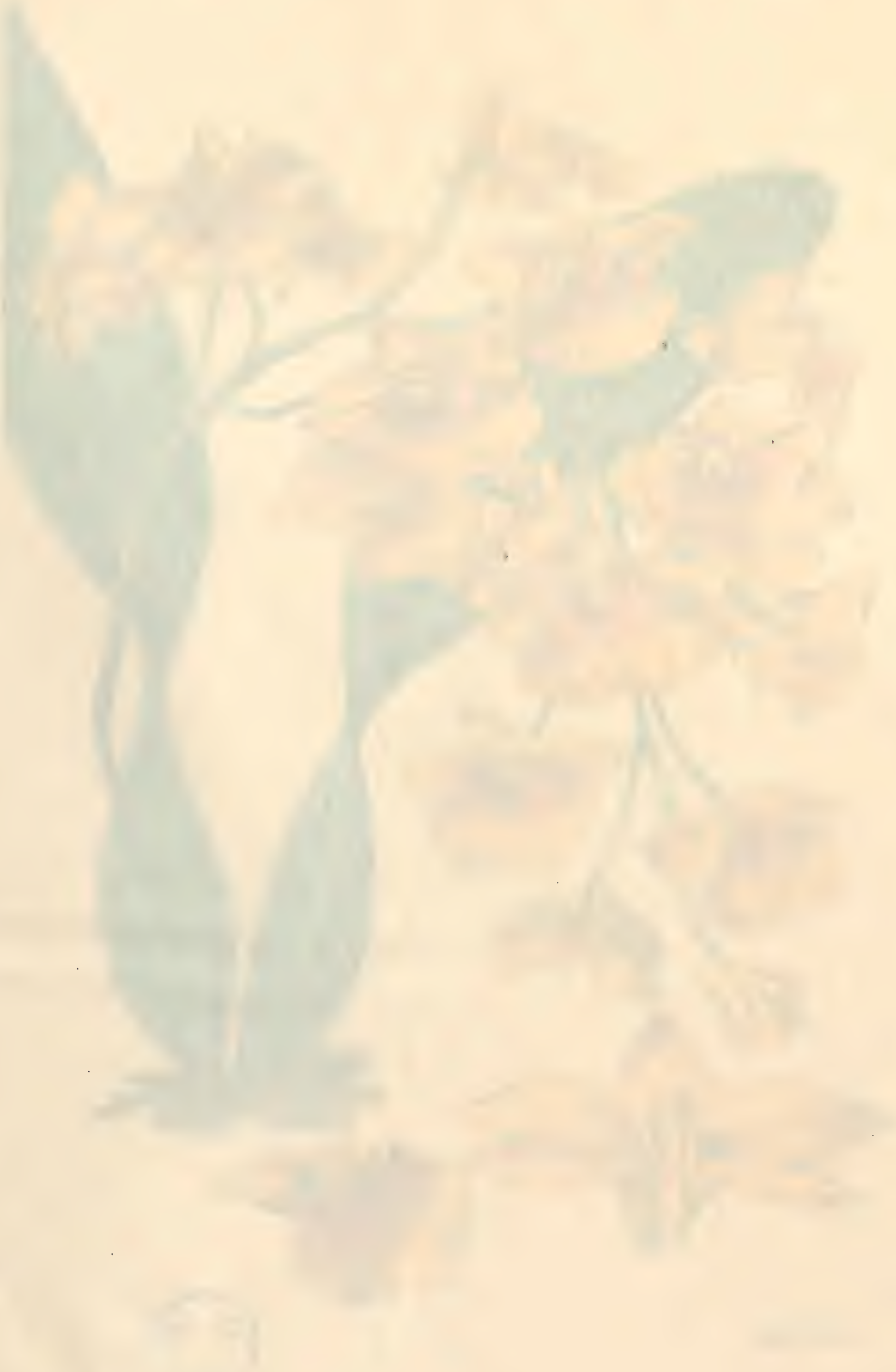
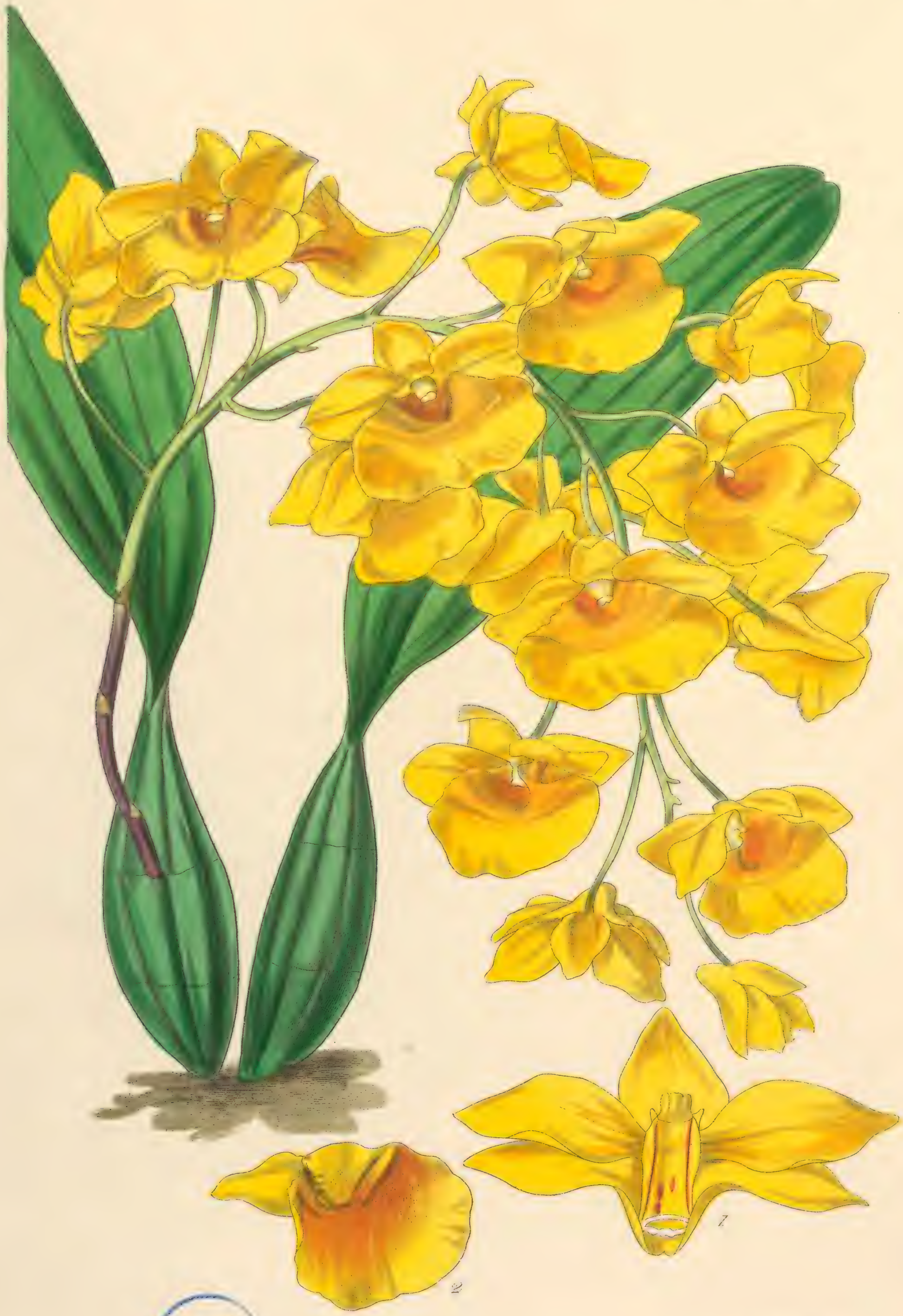


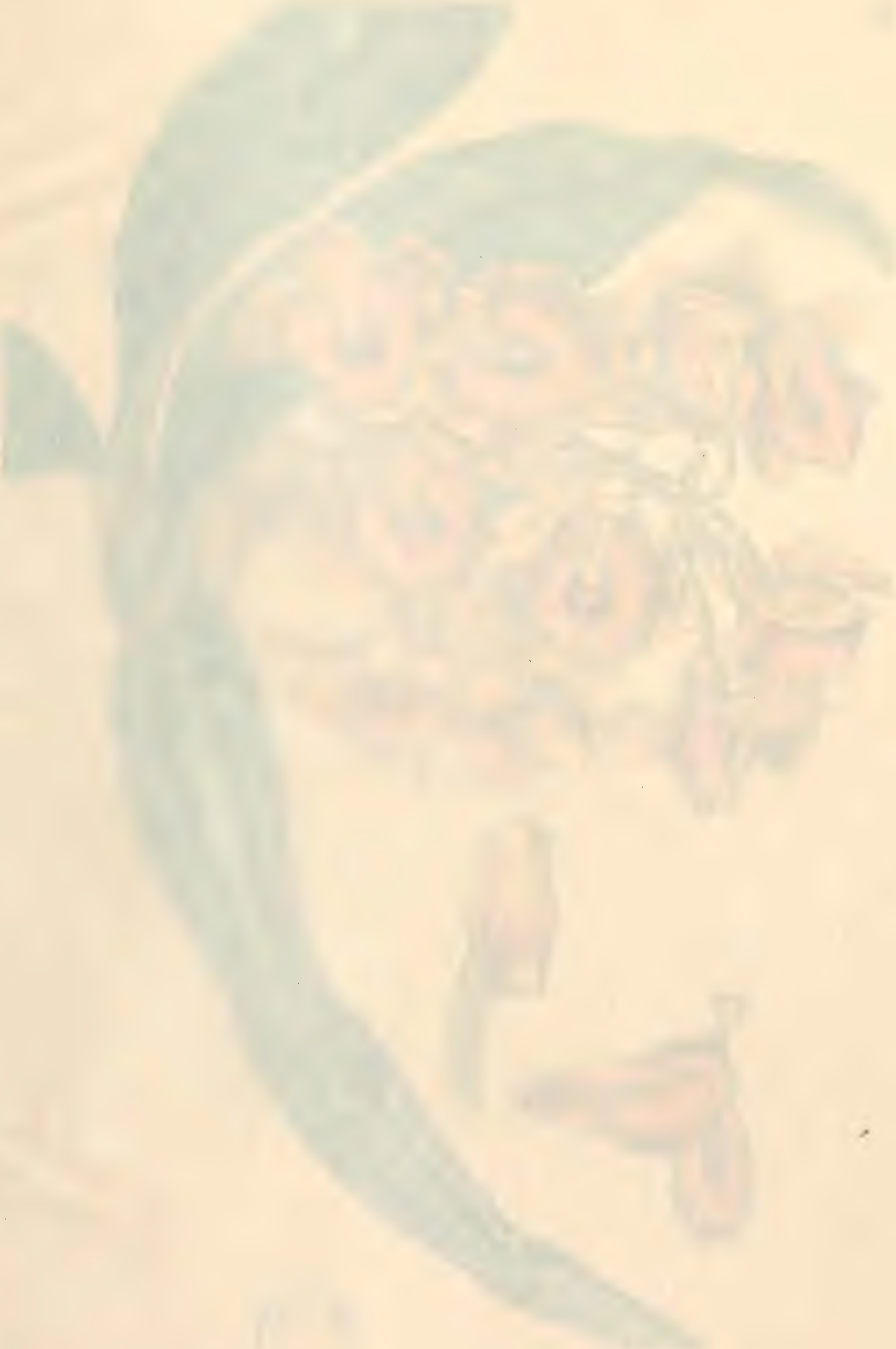
Plate 8.

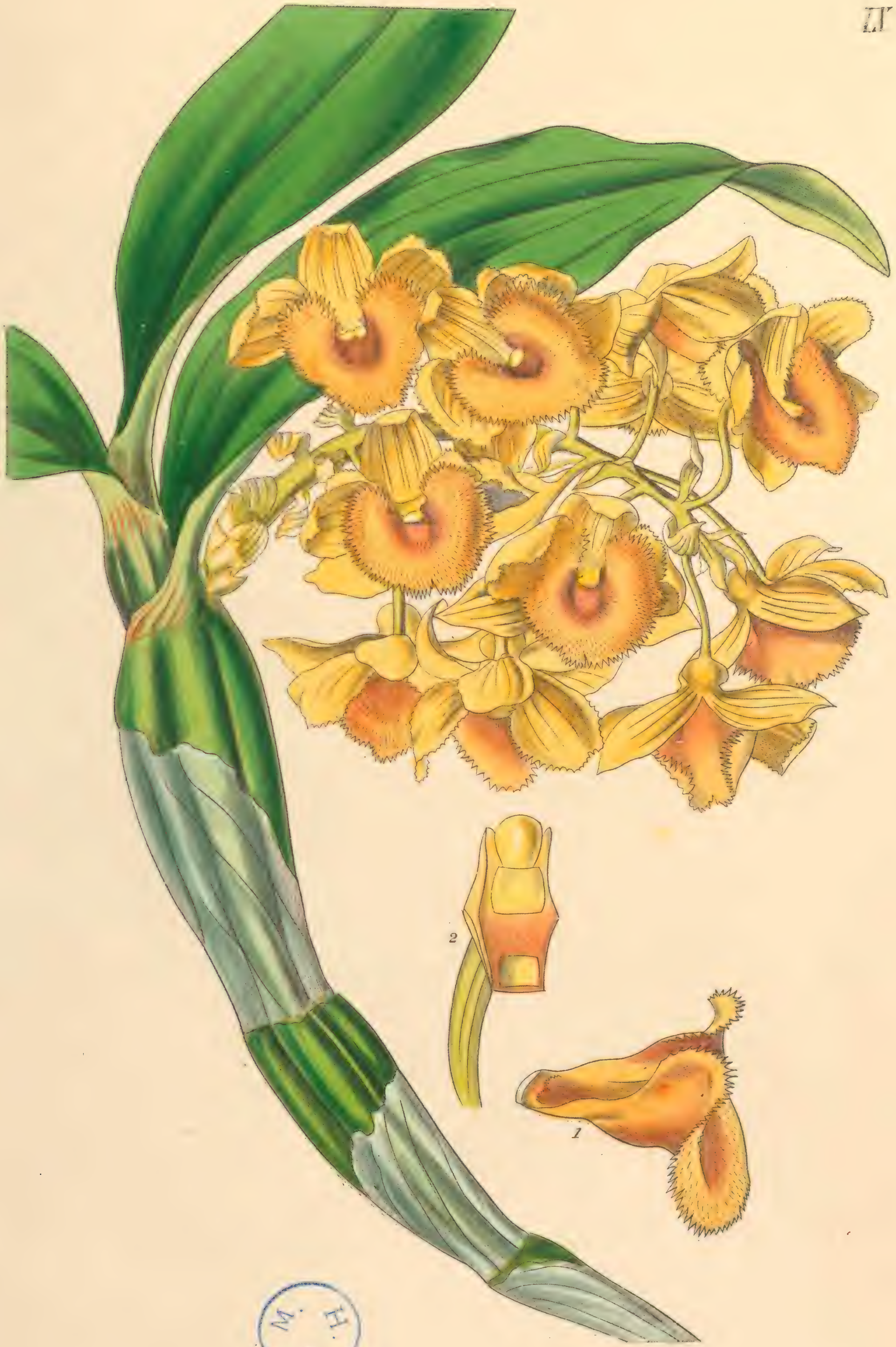


M. H. S.

R.B. & R. imp.

Dendrobium aggregatum.

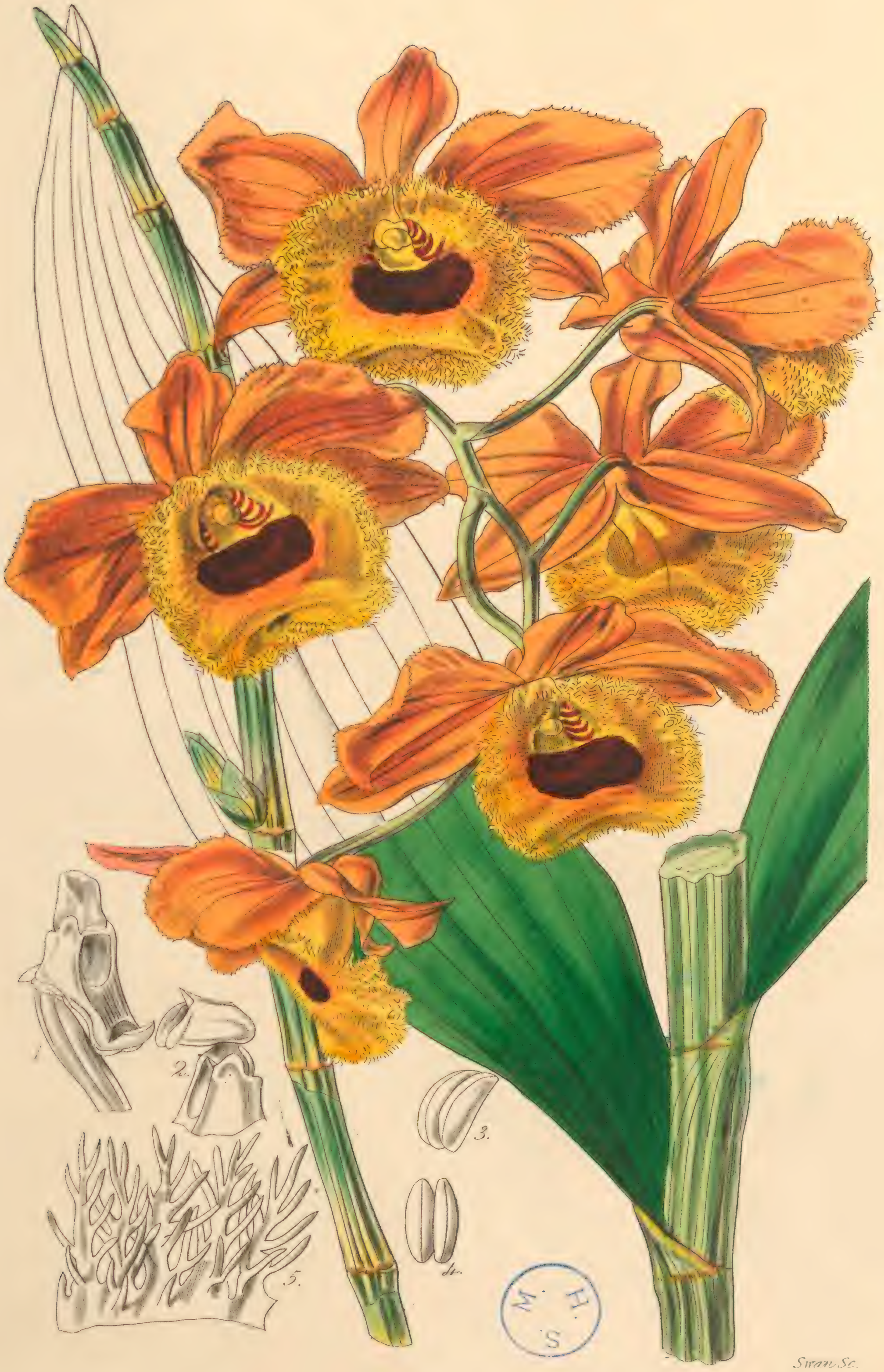




M. H. S.

Dendrobium densiflorum (Wall)

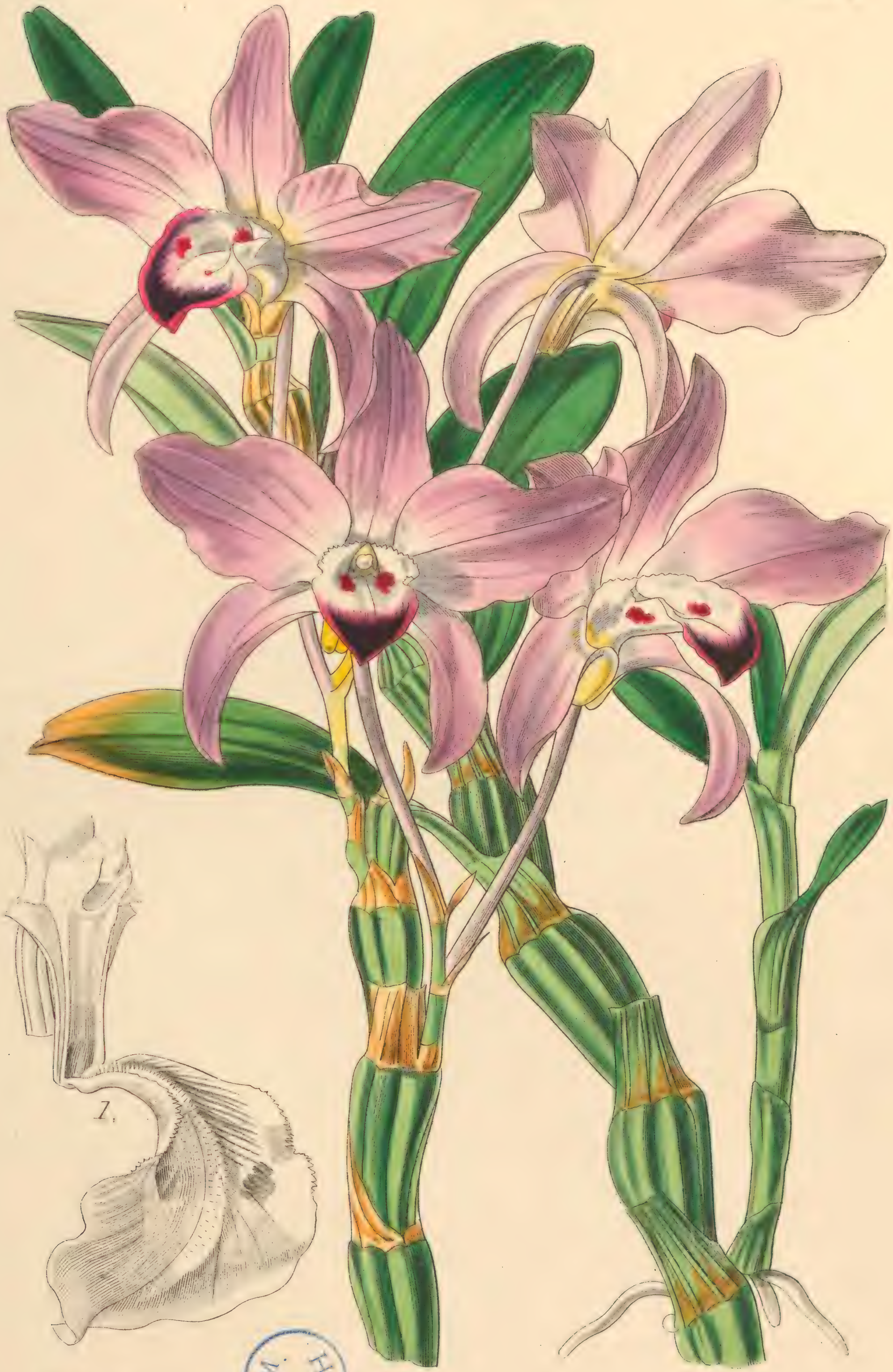
X V



Swan Sc.

M. H. S.

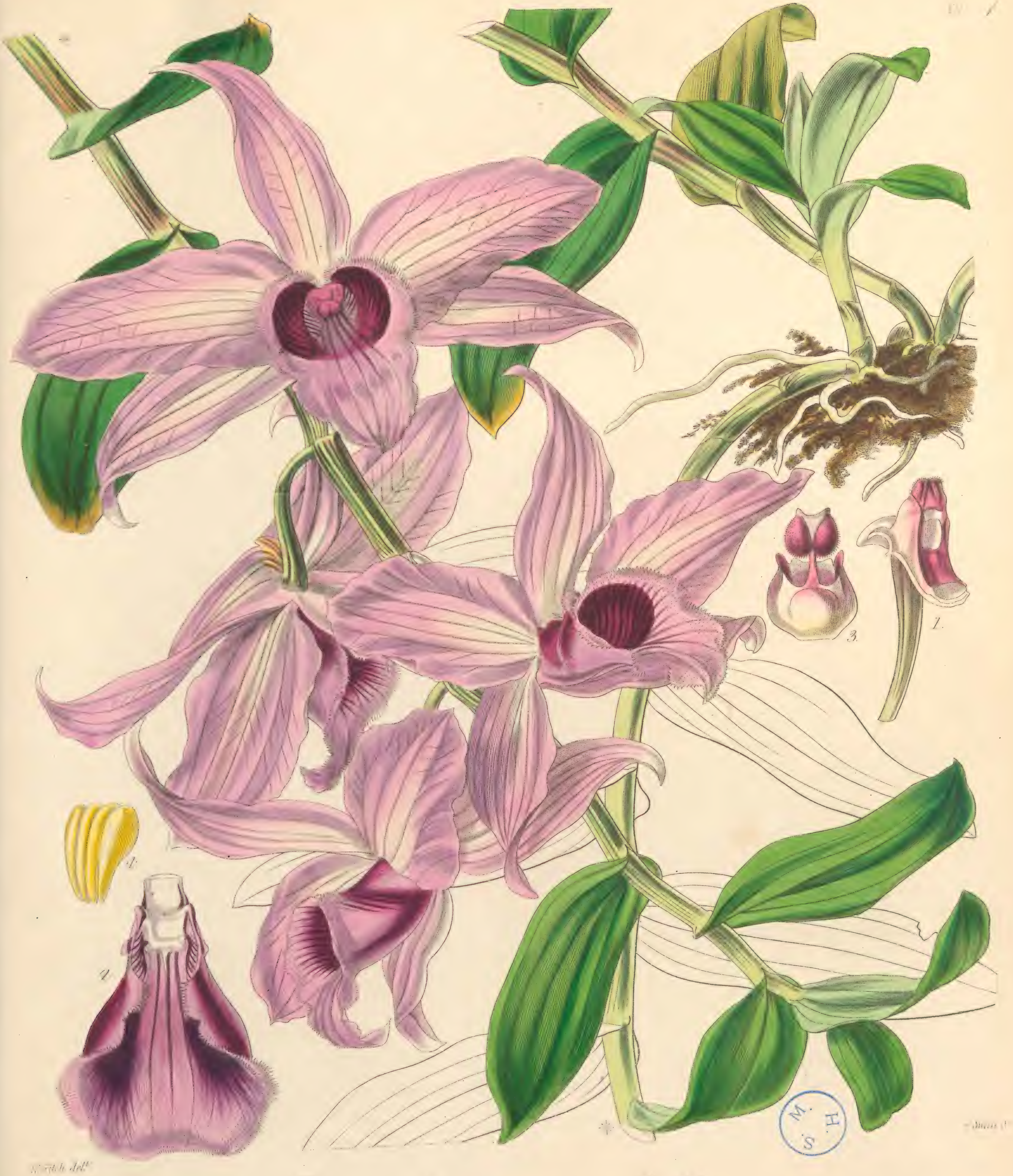
Dendrobium fimbriatum Hook.
var. oculatum



W. Fitch delt

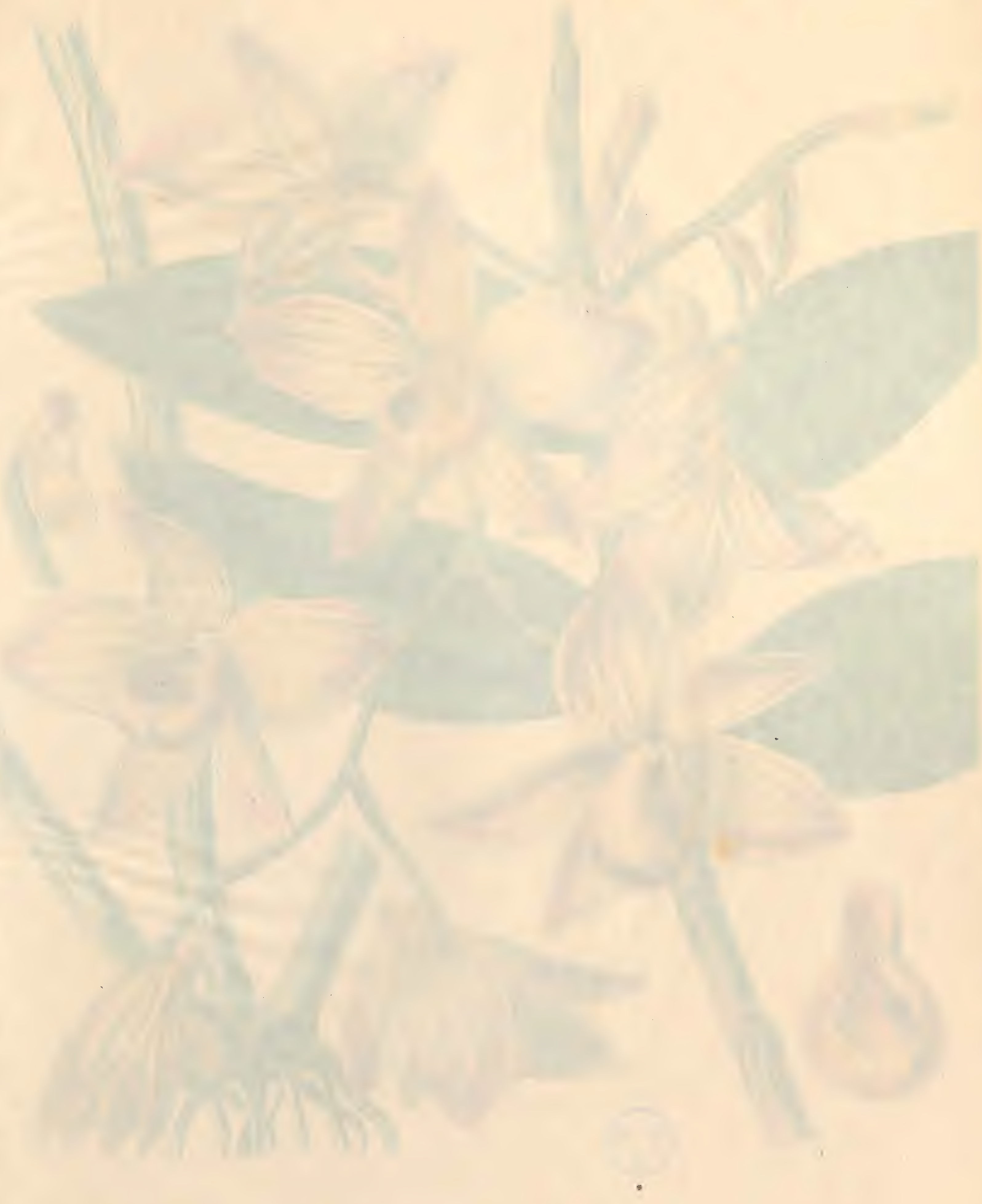
M. H. S.

Dendrobium moniliforme
Sw.

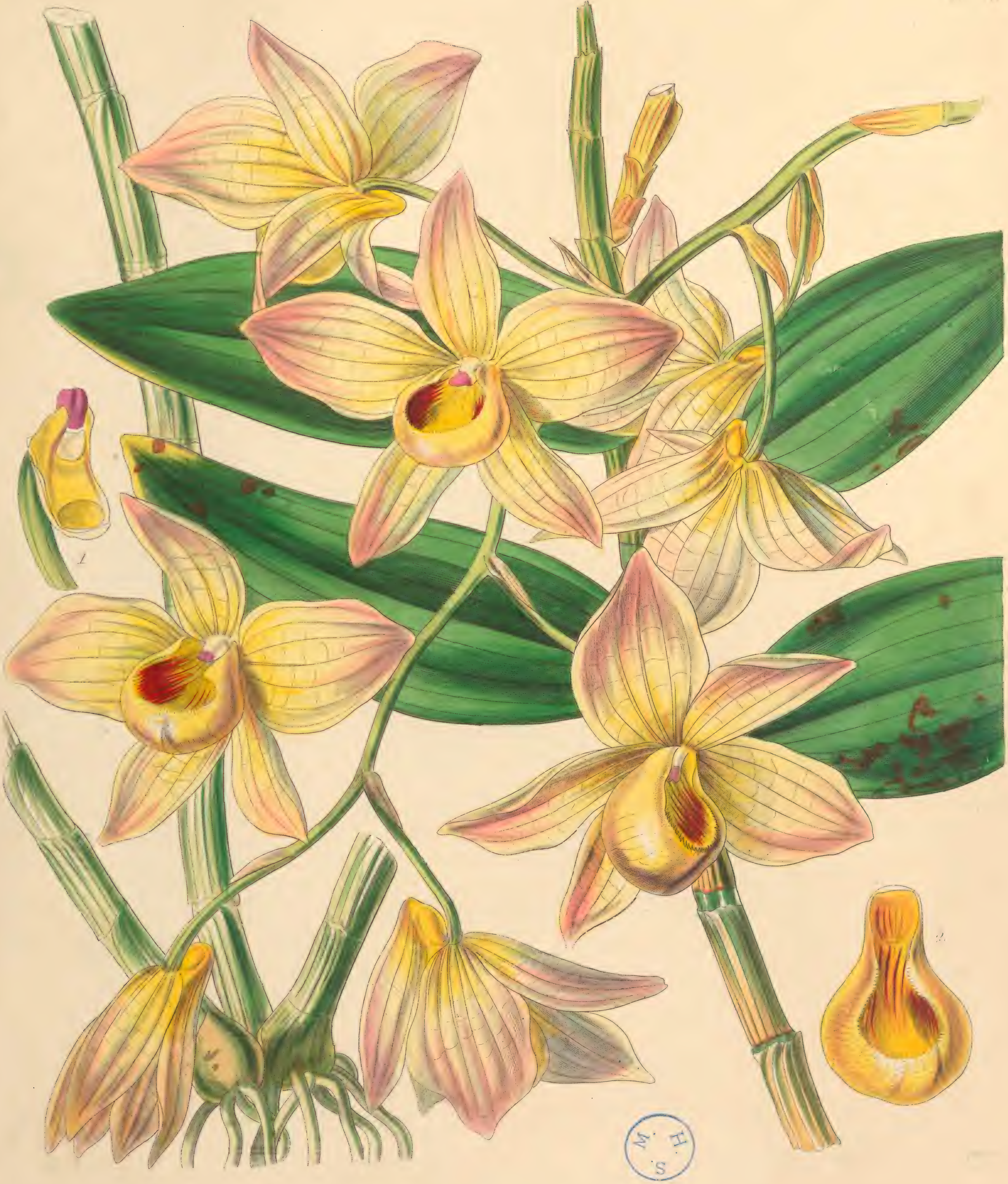

Pl. 1
1.
2.
3.
4.
*
W. Fitch delt.

Dendrobium macrophyllum
(Lindl.)

M. H. S.



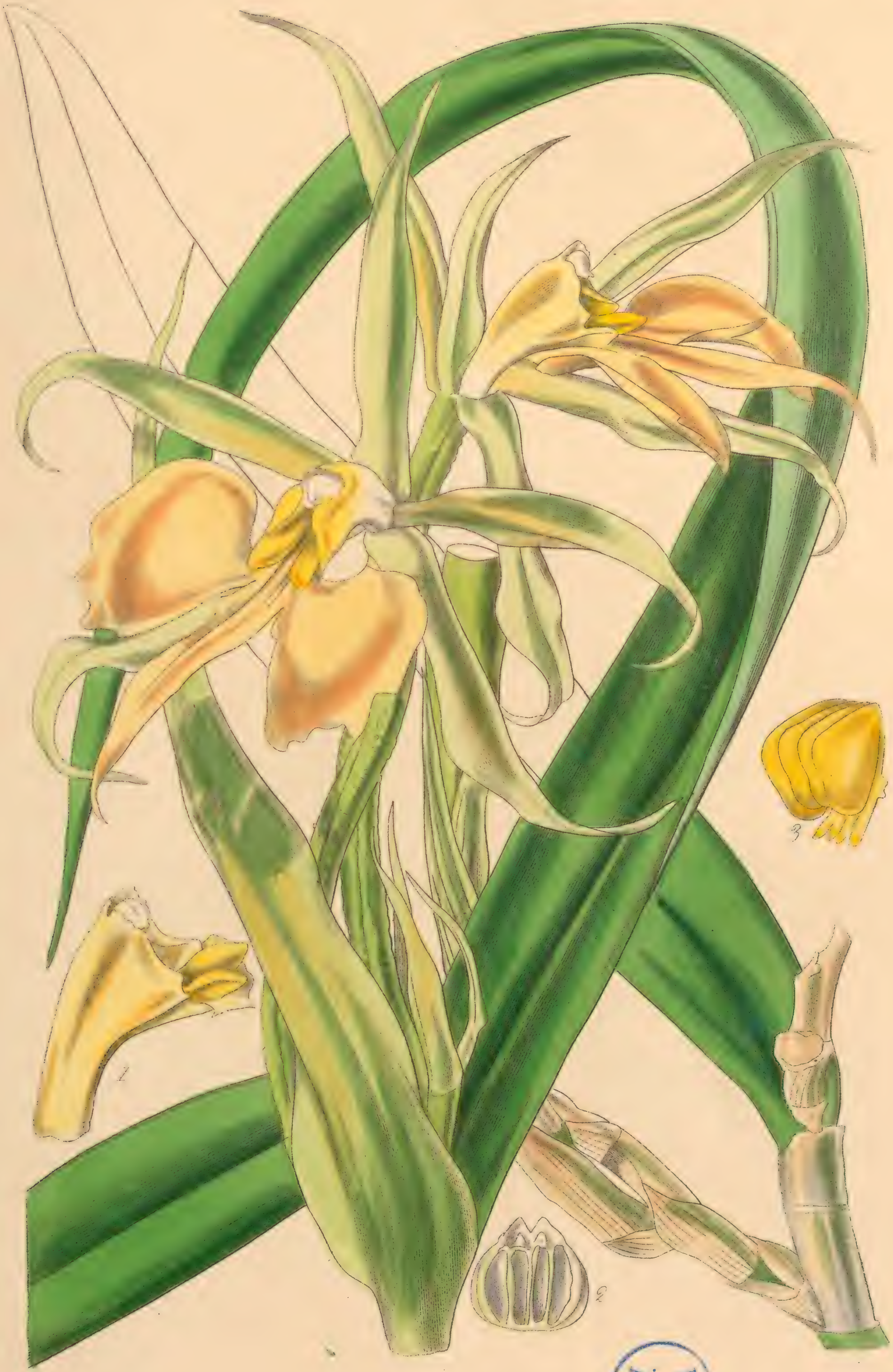
VIII. 16



M. H. S

Dendrobium cucullatum.
(Wall.)

Plate 14. ✓

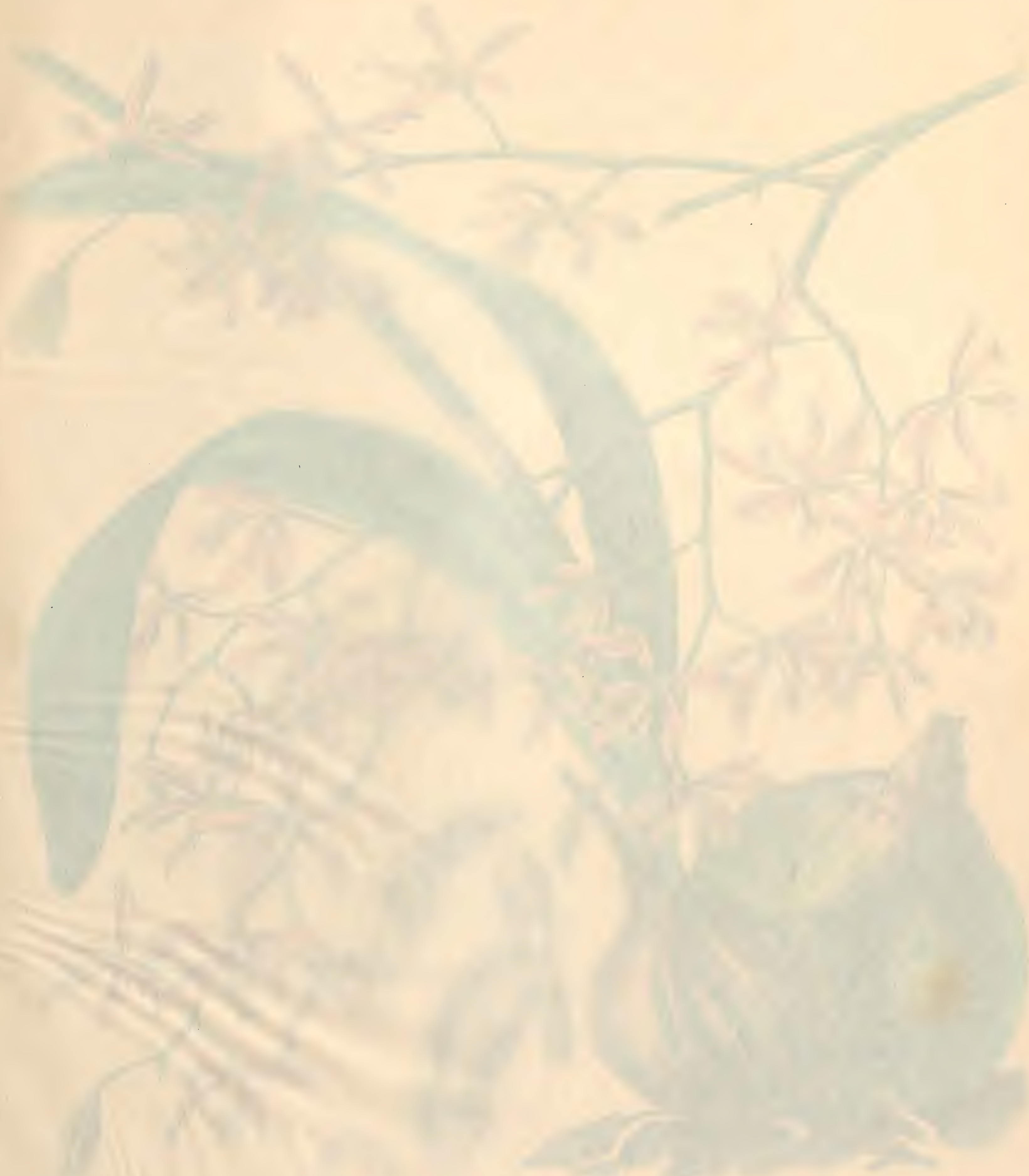


Fitch del.

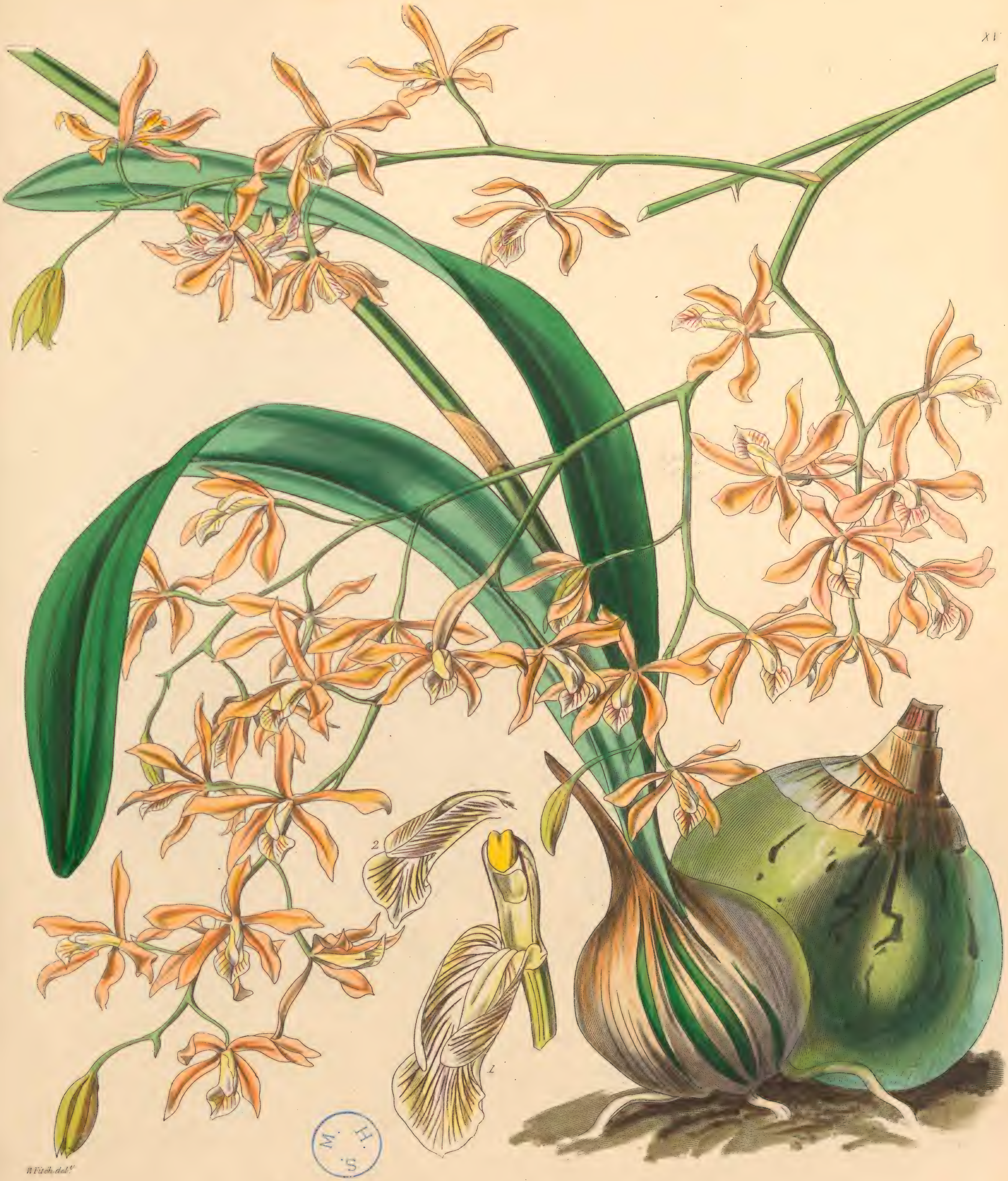
M. H. S.

Reeve imp.

Epidendrum Parkinsonianum.



XV.



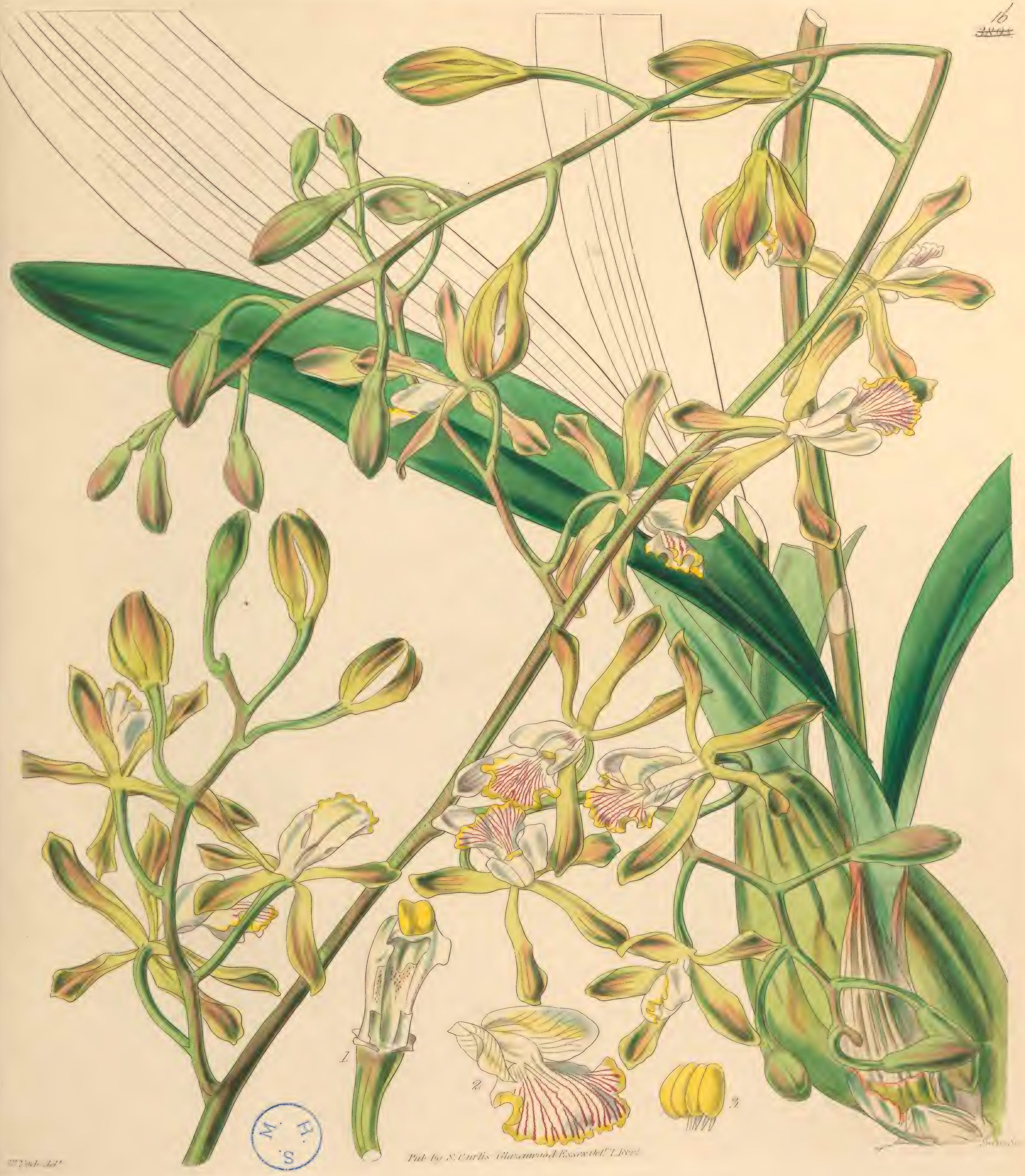
W Fitch del.

M. H. S.

Epidendrum Cepiforme
(Hook.)

16

~~3898~~



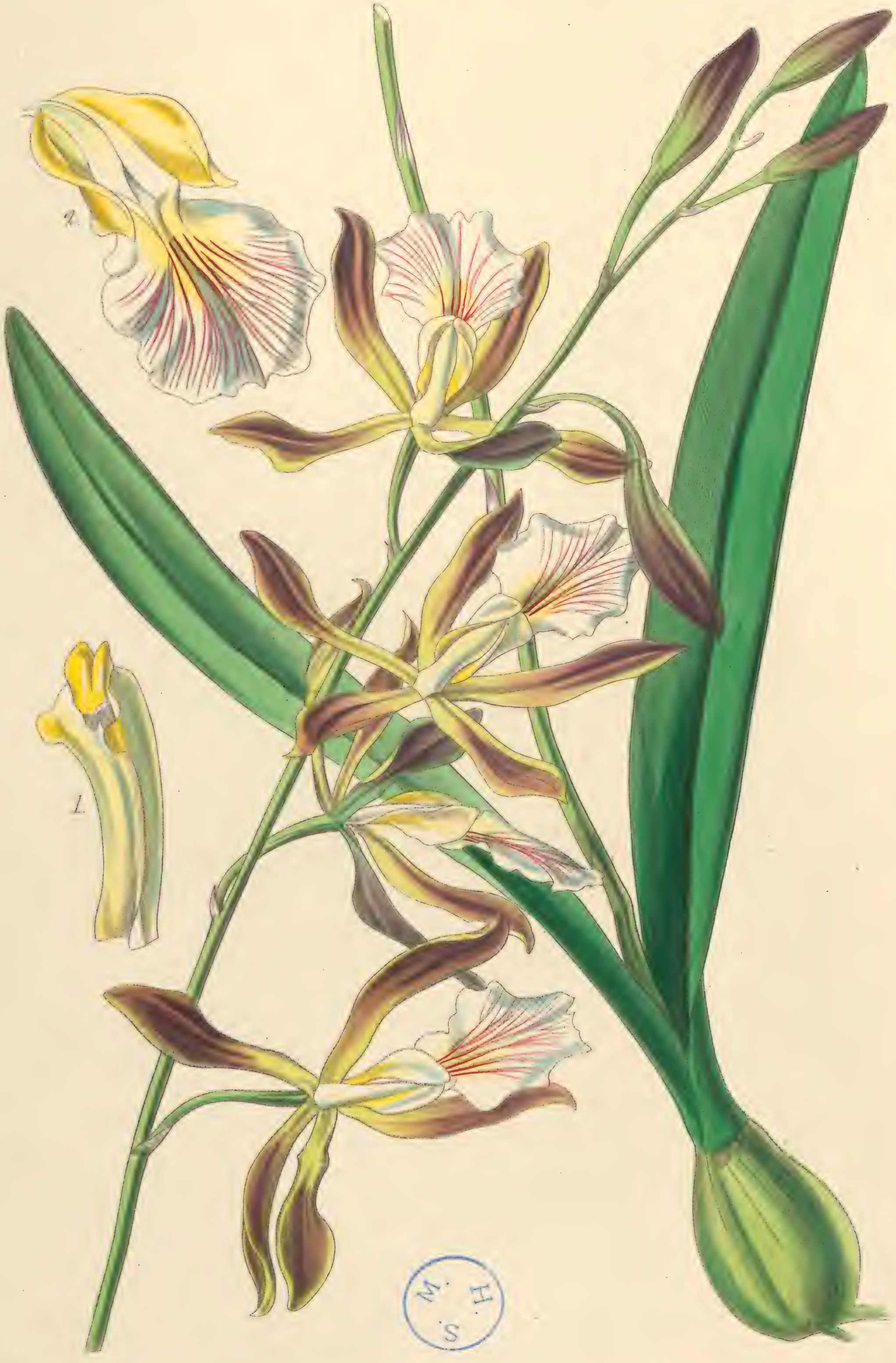
W. Fitch del.

Pub by S. Curtis Glazenwood Essex Oct 1 1841

Swan Sc.

M. H. S.

Epidendrum calochilum.
(Hook.)



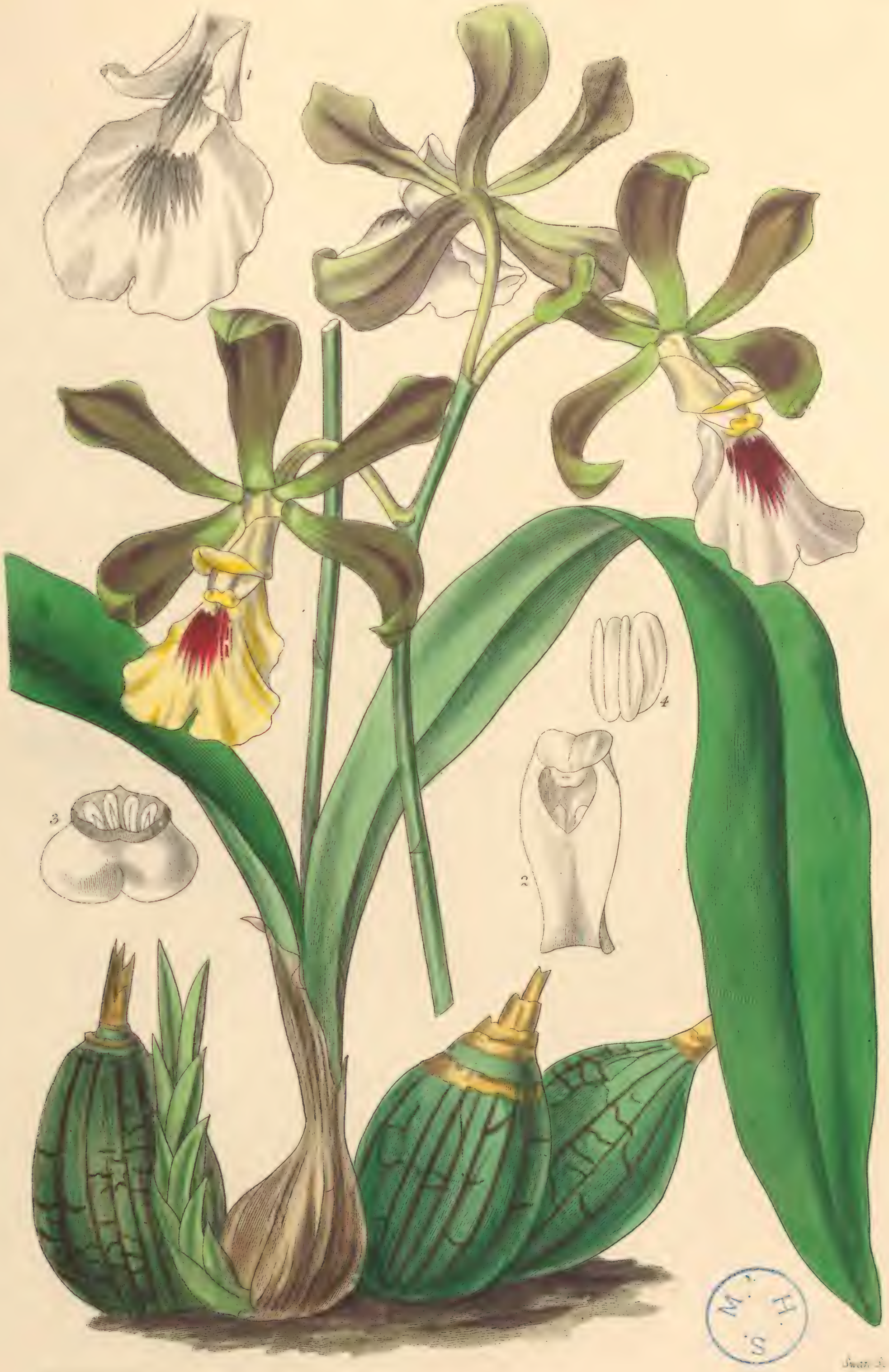
M. H. S.

W. Fitch del.^t

Swan S.

Epidendrum Grahami
(Hook)

XVIII



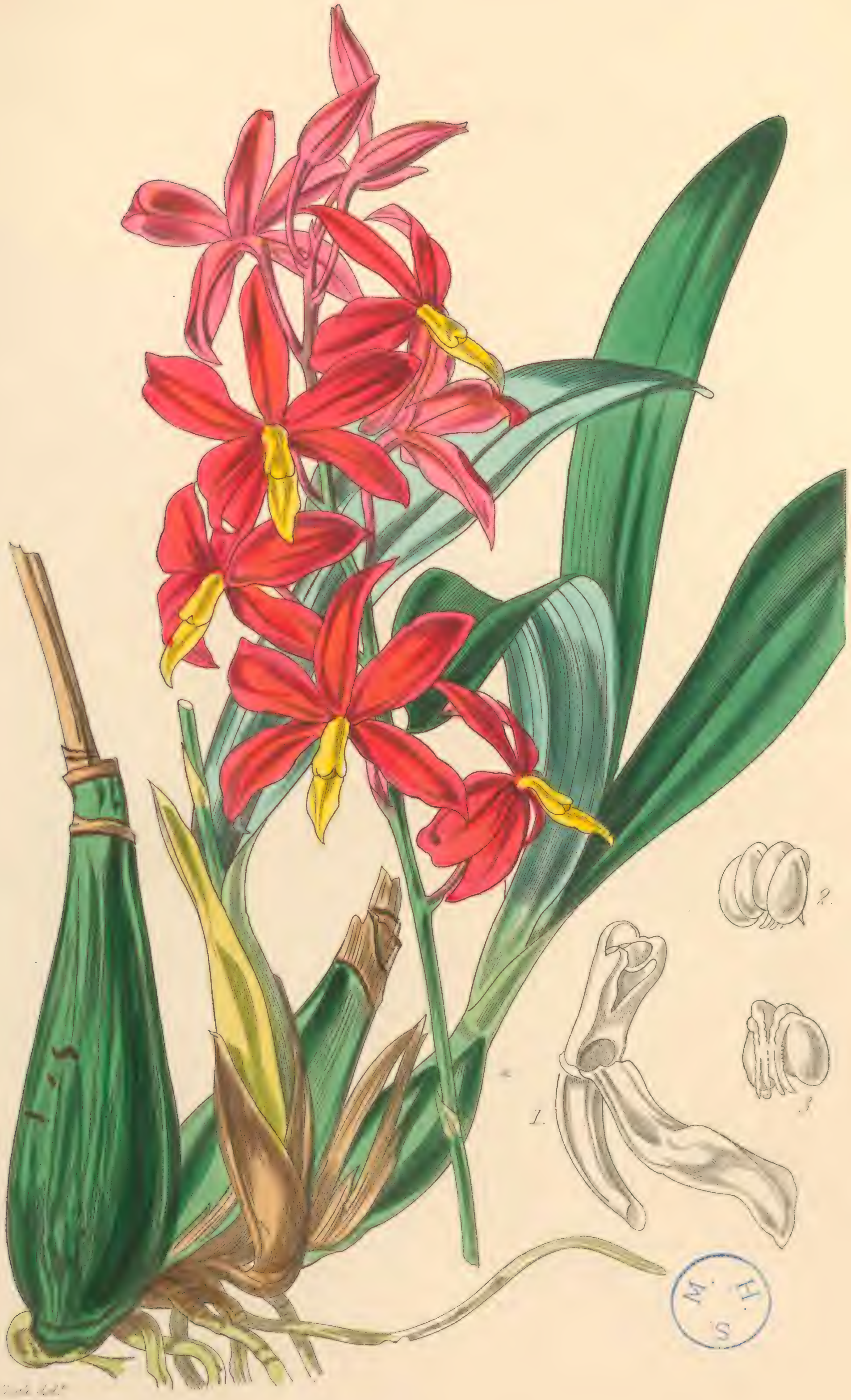
Mrs Chas Horsfall del.

Swan Sc.

M. H. S.

Epidendrum macrochilum
Hook.

XIX ✓


2
a
1
3
W. Fitch del.

M. H. S.

Epidendrum vitellinum
Lindl.

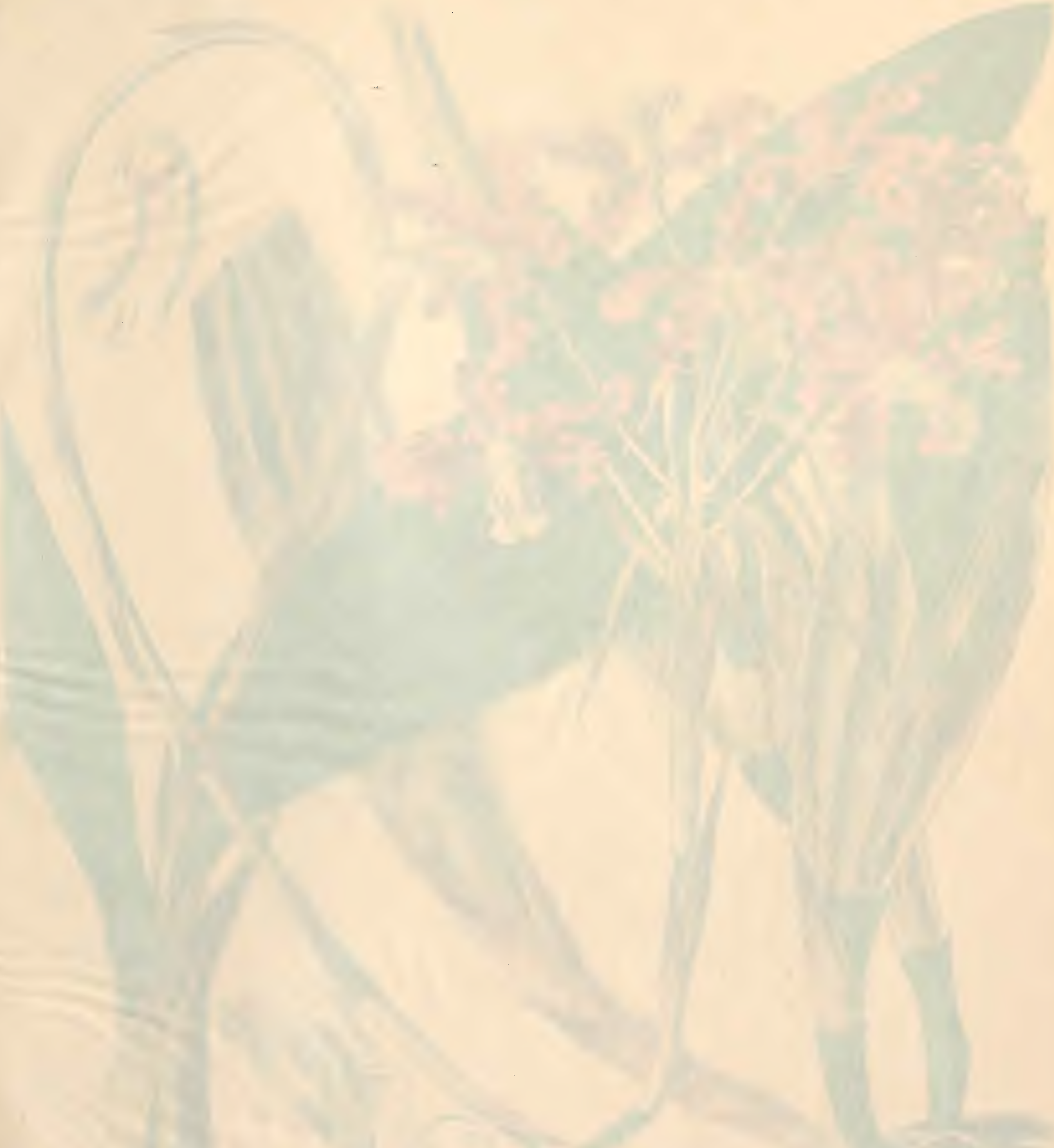
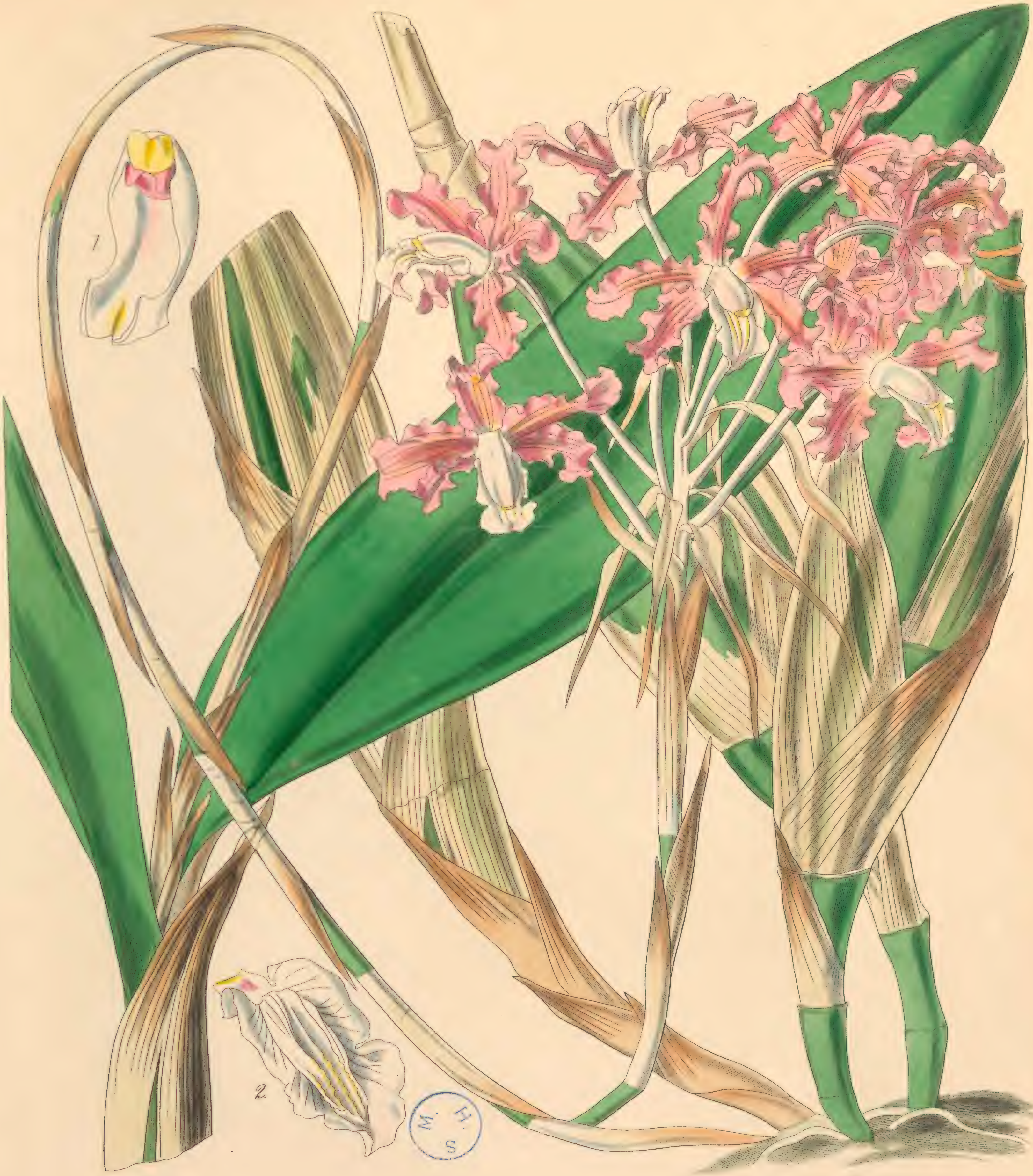


Plate 20. ✓



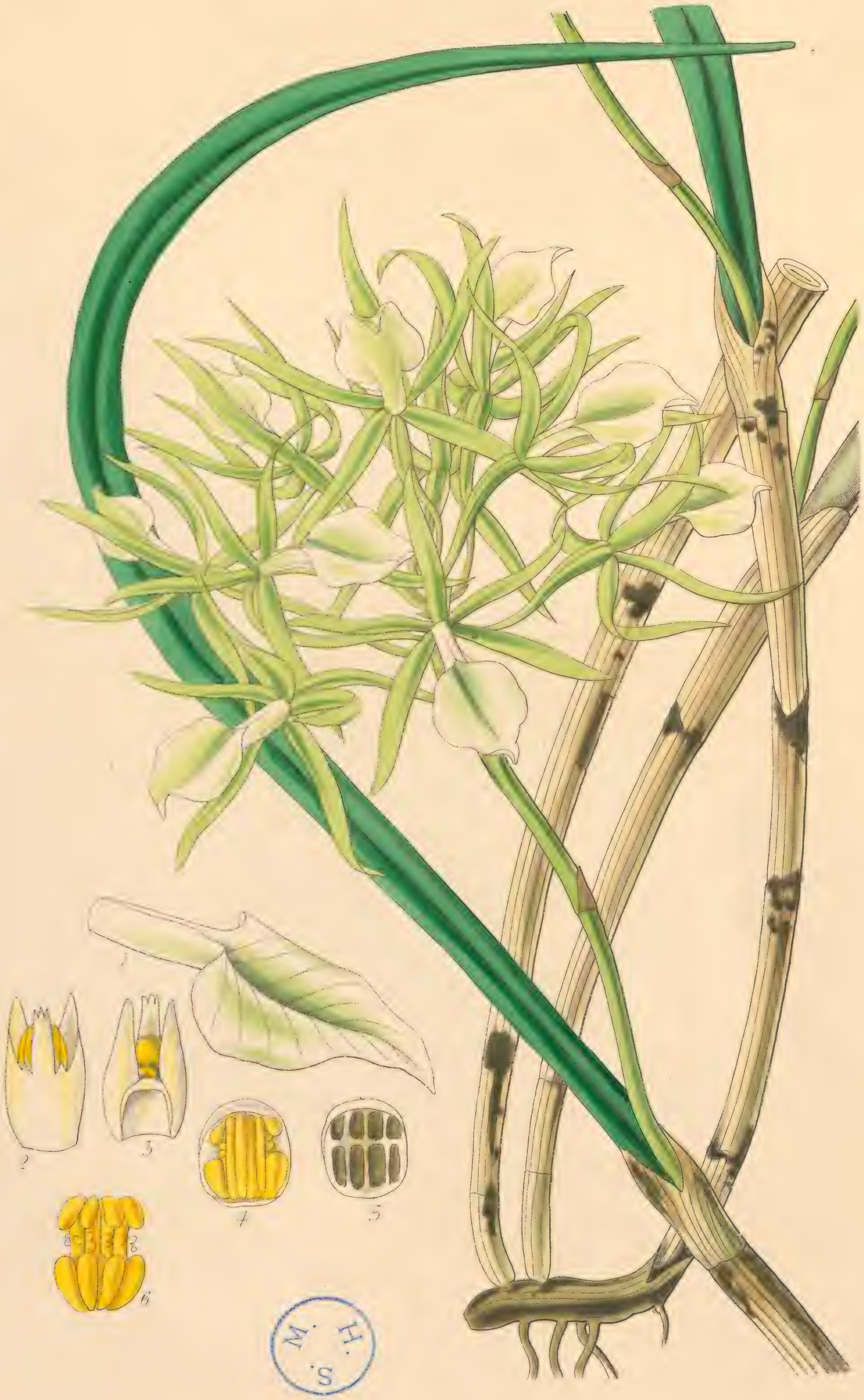
M. H. S.

Fitch del.

Reeve imp.

Schomburghia marginata.

Plate 21. √



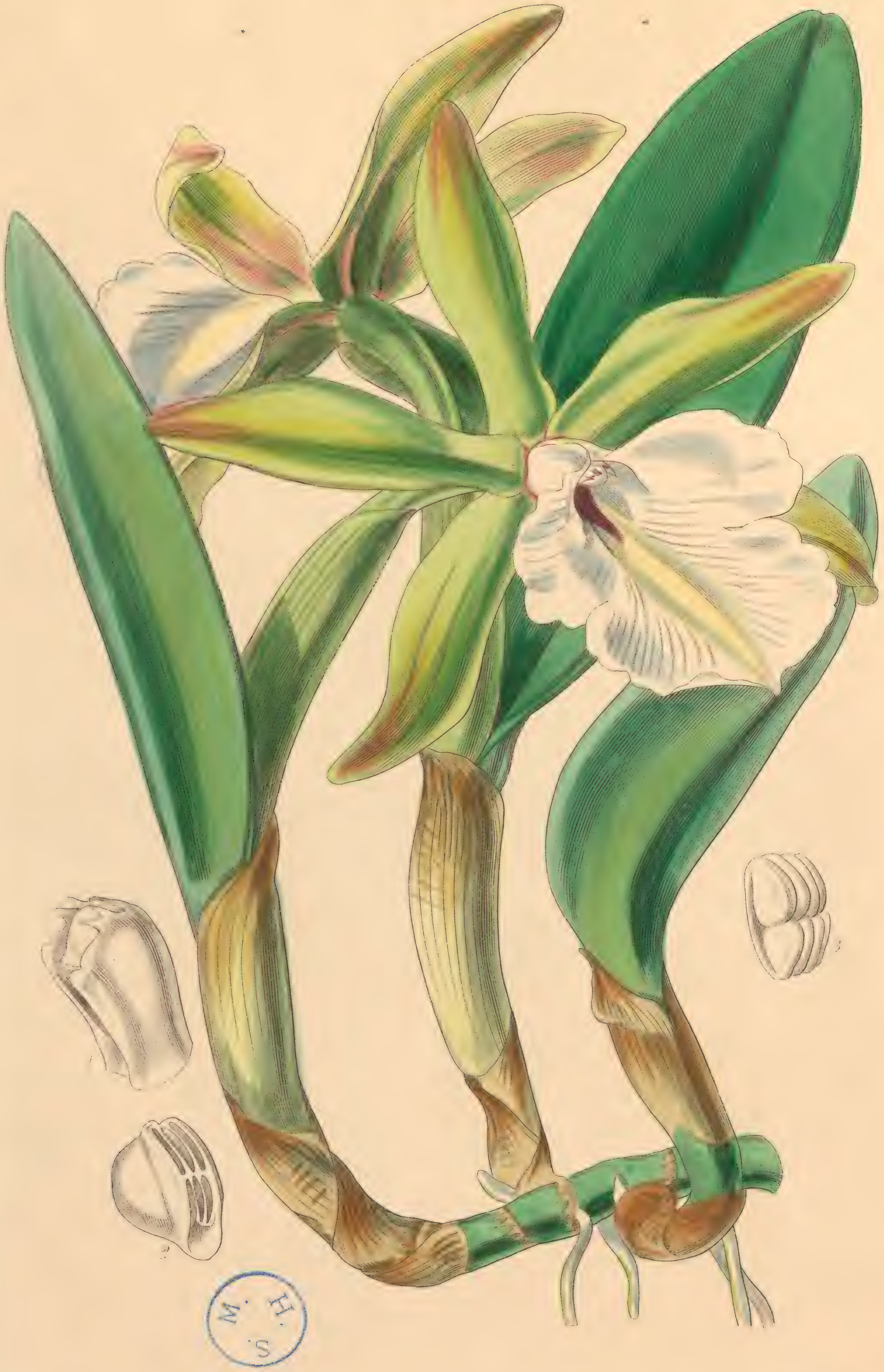
M. H. S.

Fitch del.

Reeve imp.

Braſsavola nodosa

Plate 22. ✓



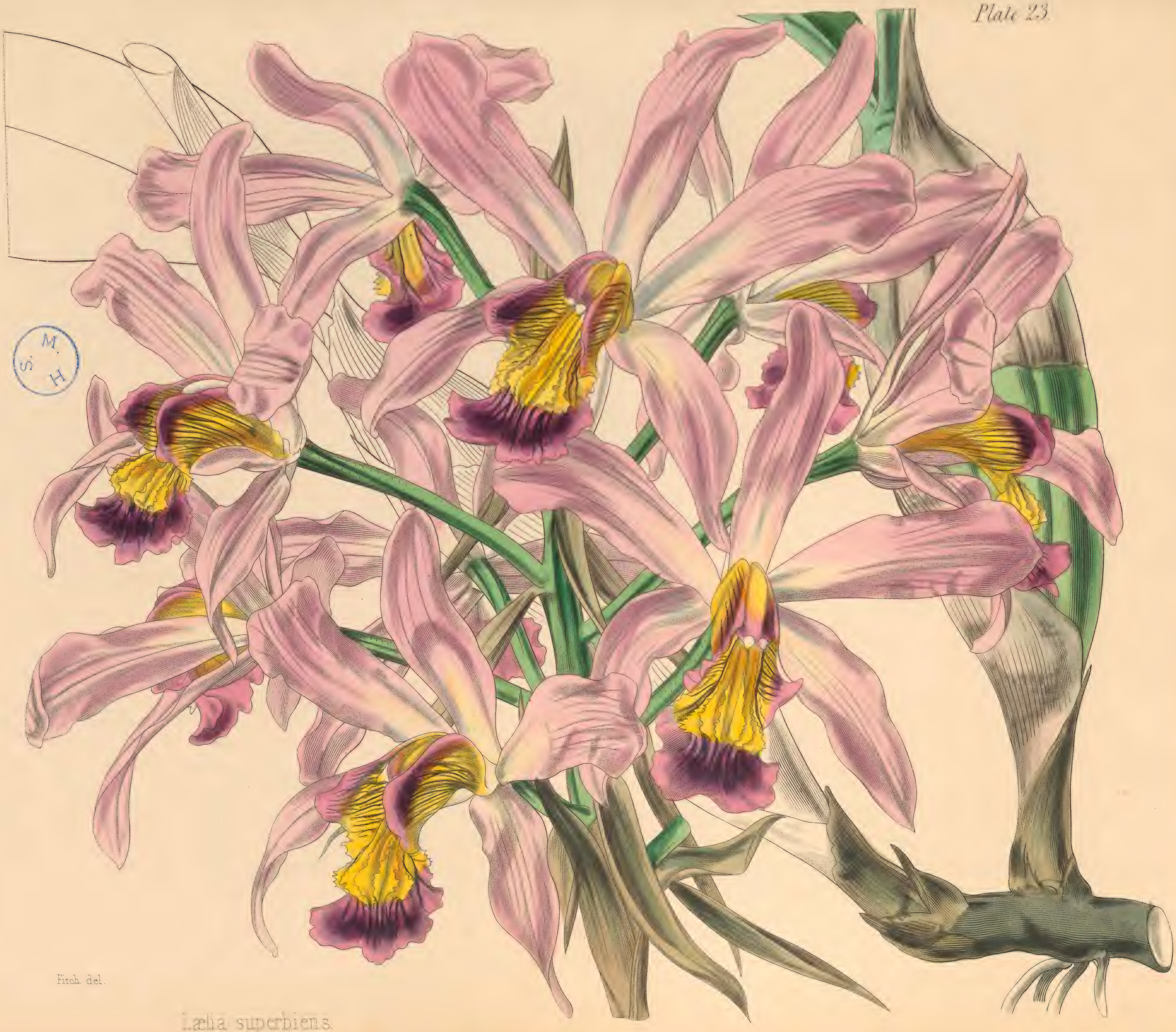
M. H. S.

Fitch del

Braſsavola glauca.

Reeve imp.

Plate 23.



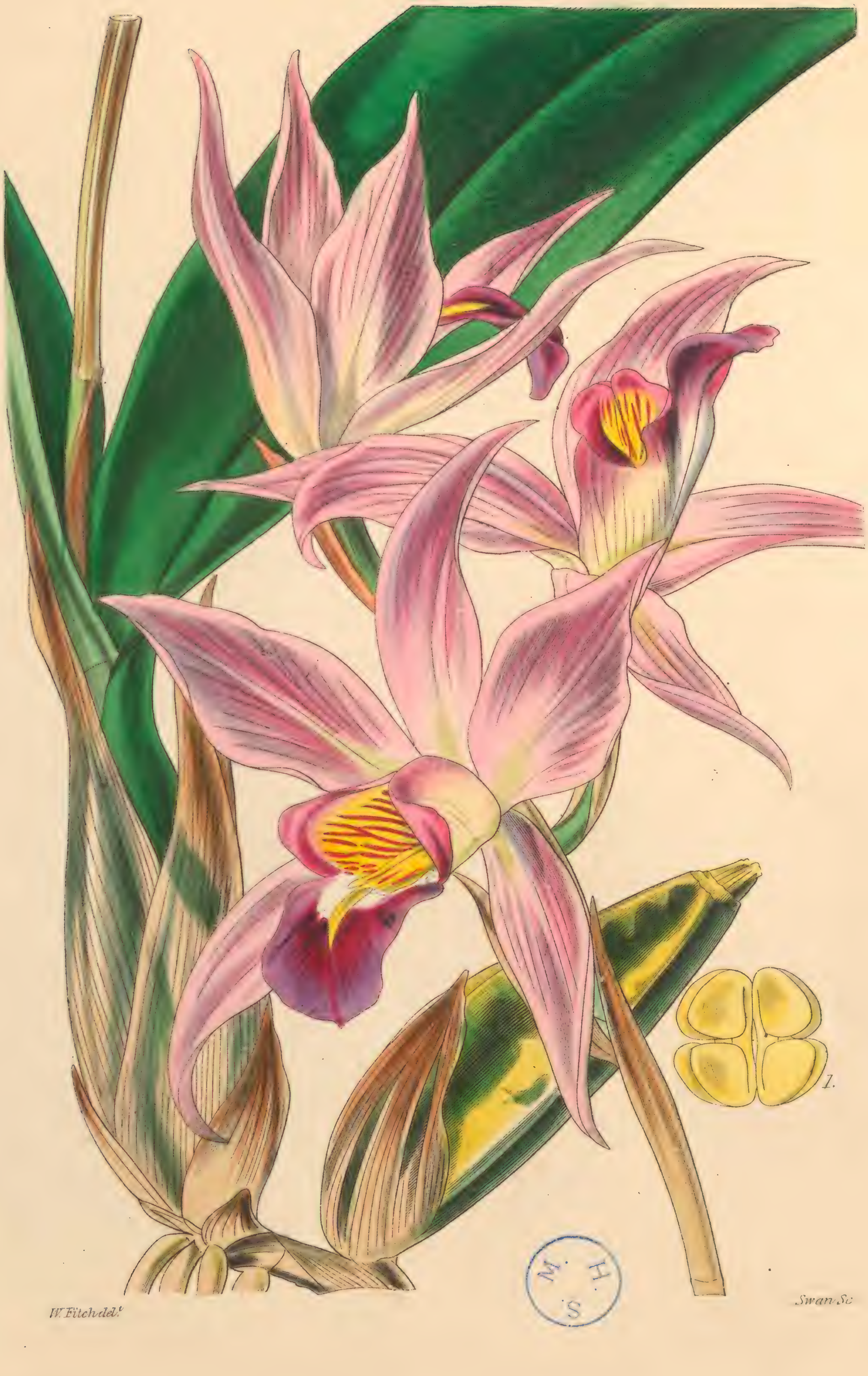
M. H. S.

Fitch del.

Lælia superbiens.

Reeve imp.

XXIV ✓



W. Fitch del.

Swan Sc.

M. H. S.

Laelia anceps
(var.)

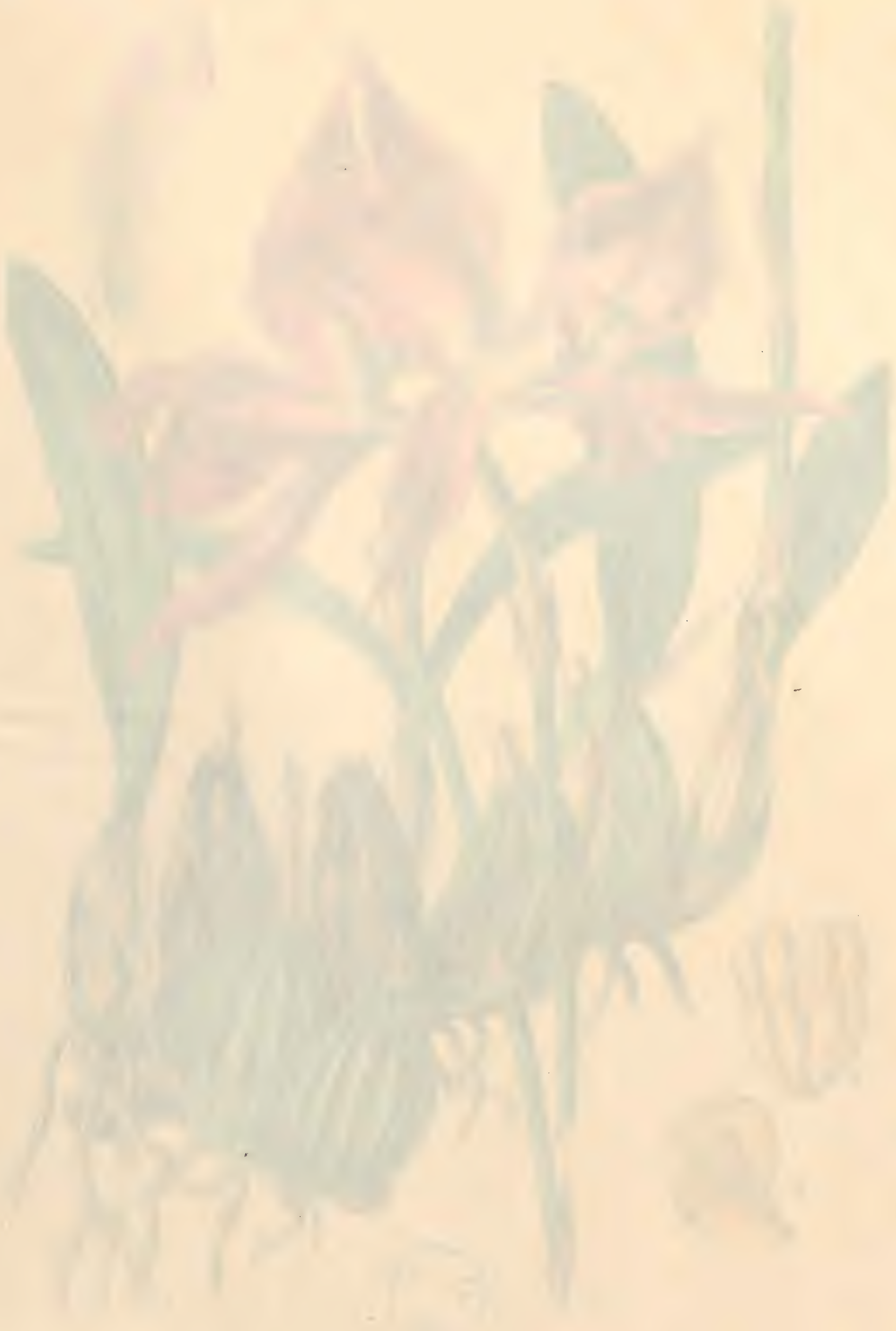
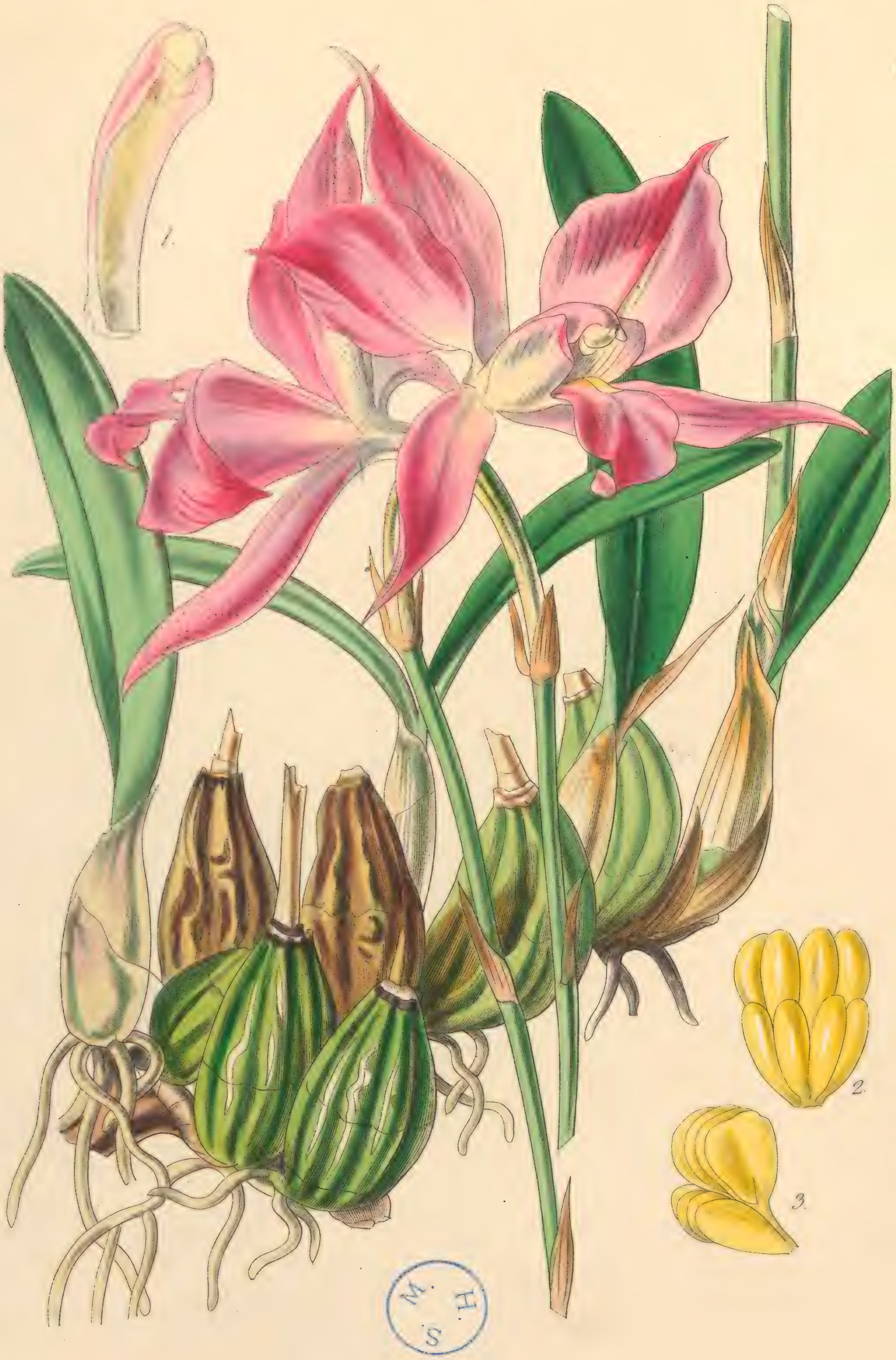


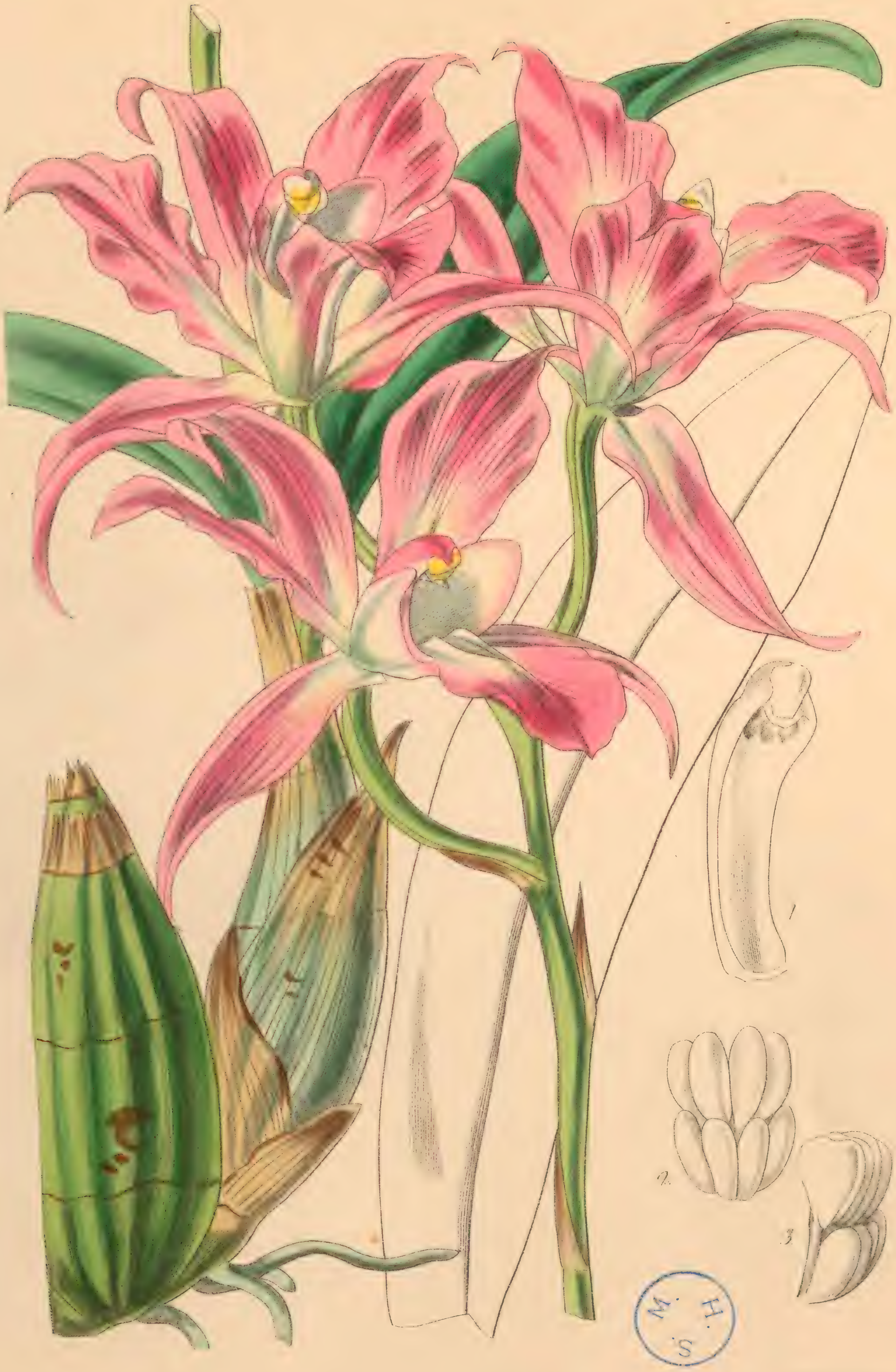
Plate XXV 1



M. H. S.

Laelia purpurata
(fresh)

Plate 26.



M. H. S.

Fitch, del. et lith.

Reeve, imp.

Lælia autumnalis.

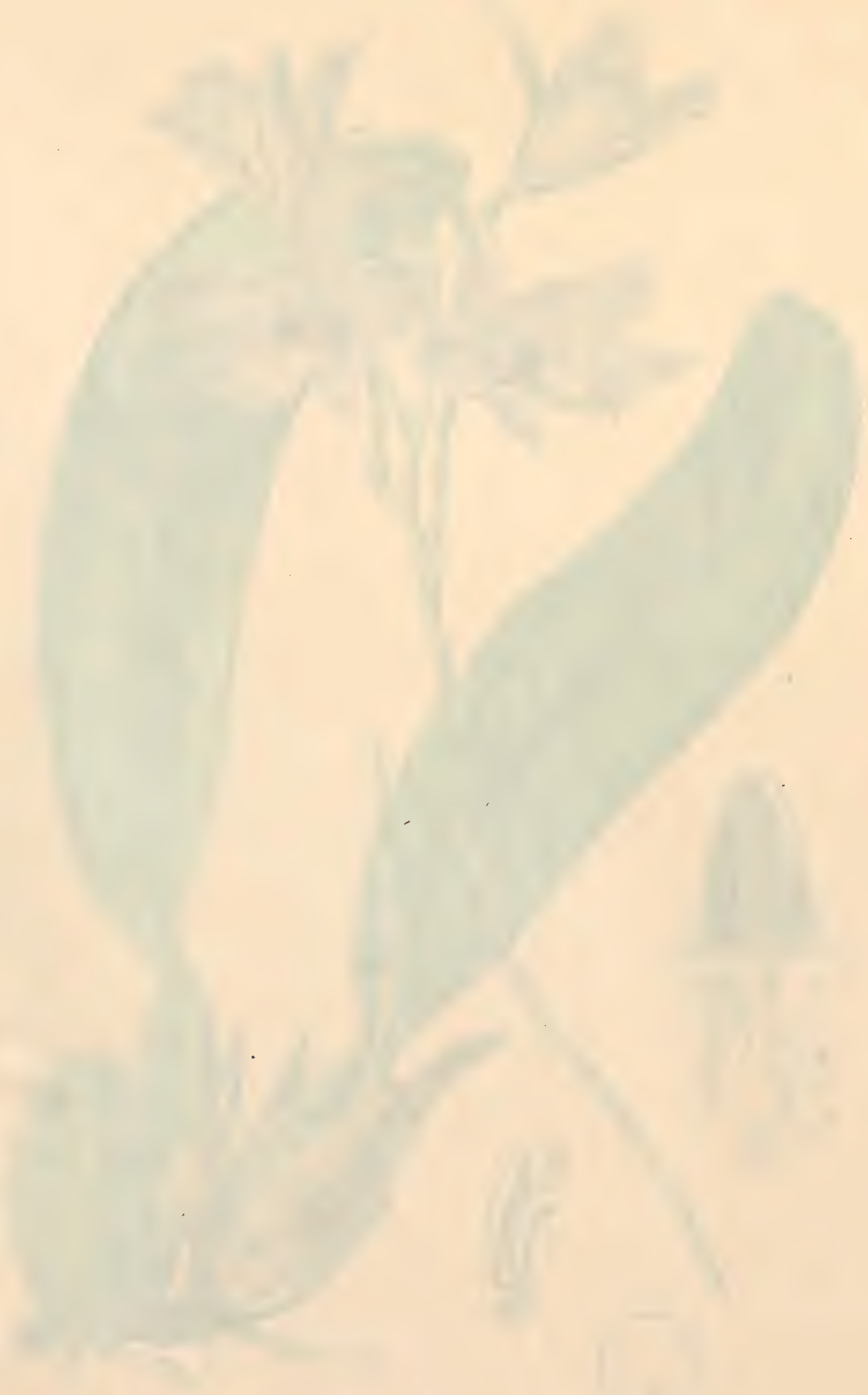
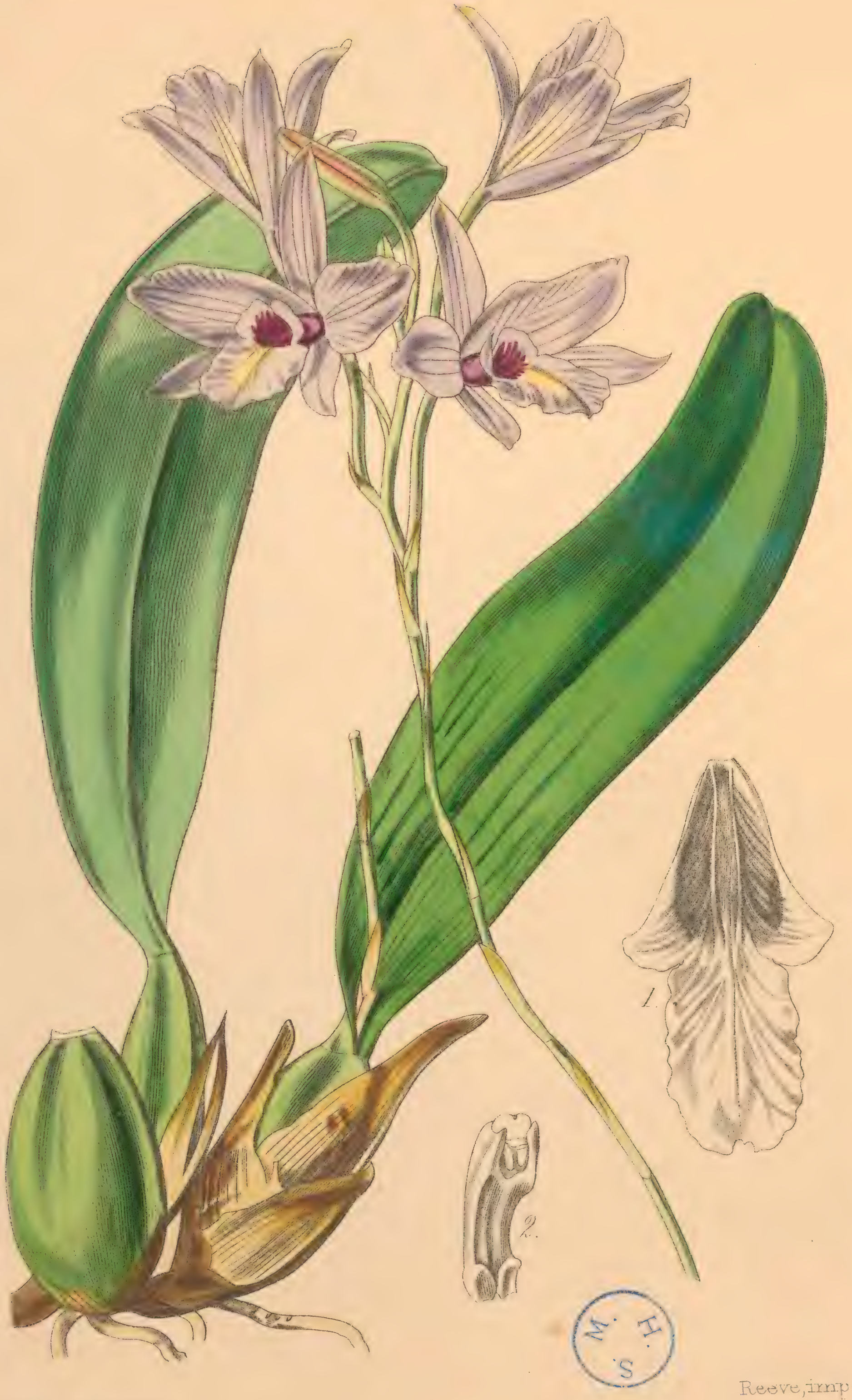


Plate 27. √



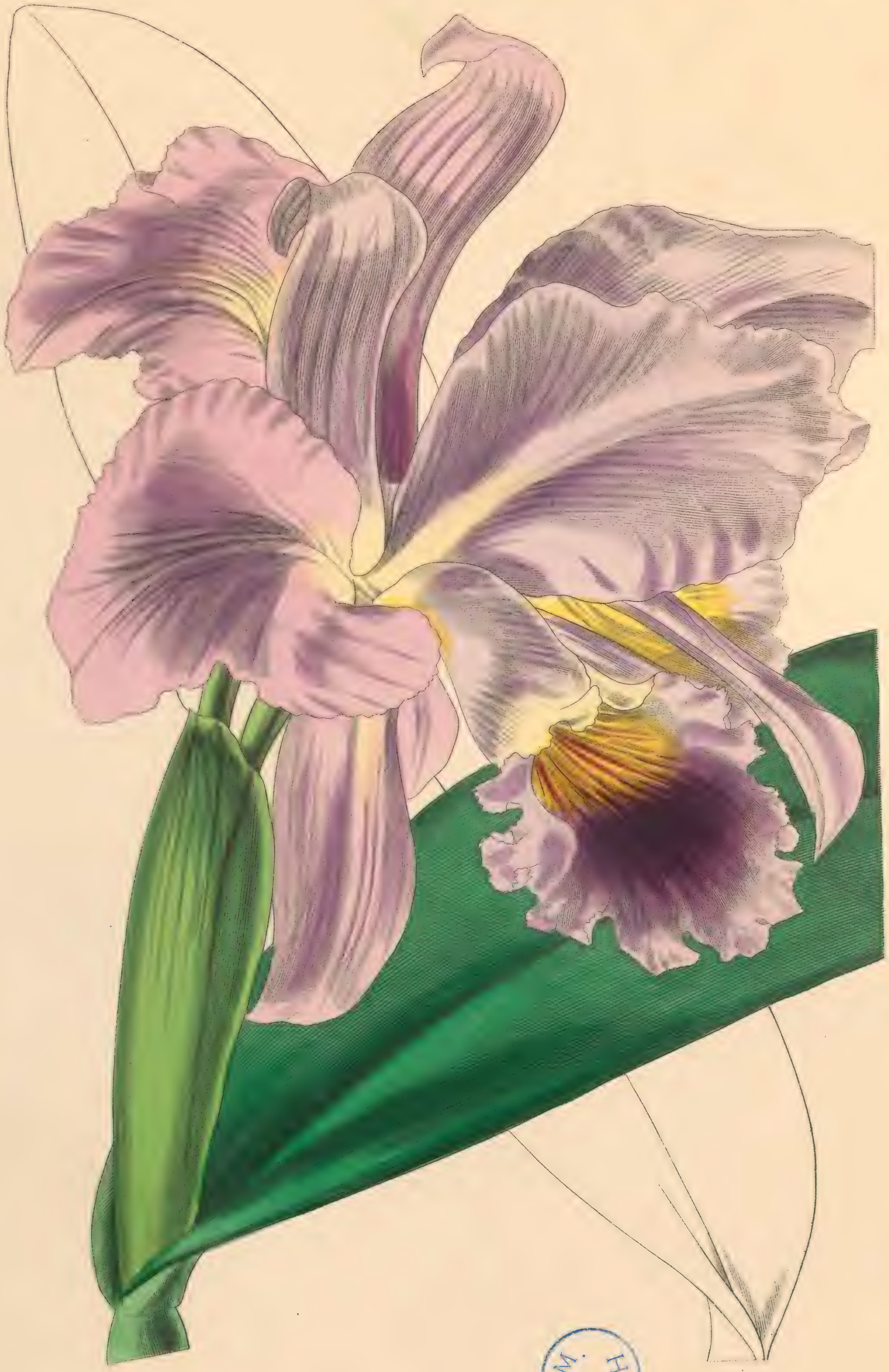
M. H. S.

Fitch, del. et lith.

Reeve, imp.

Lælia peduncularis.

Plate 28. ✓



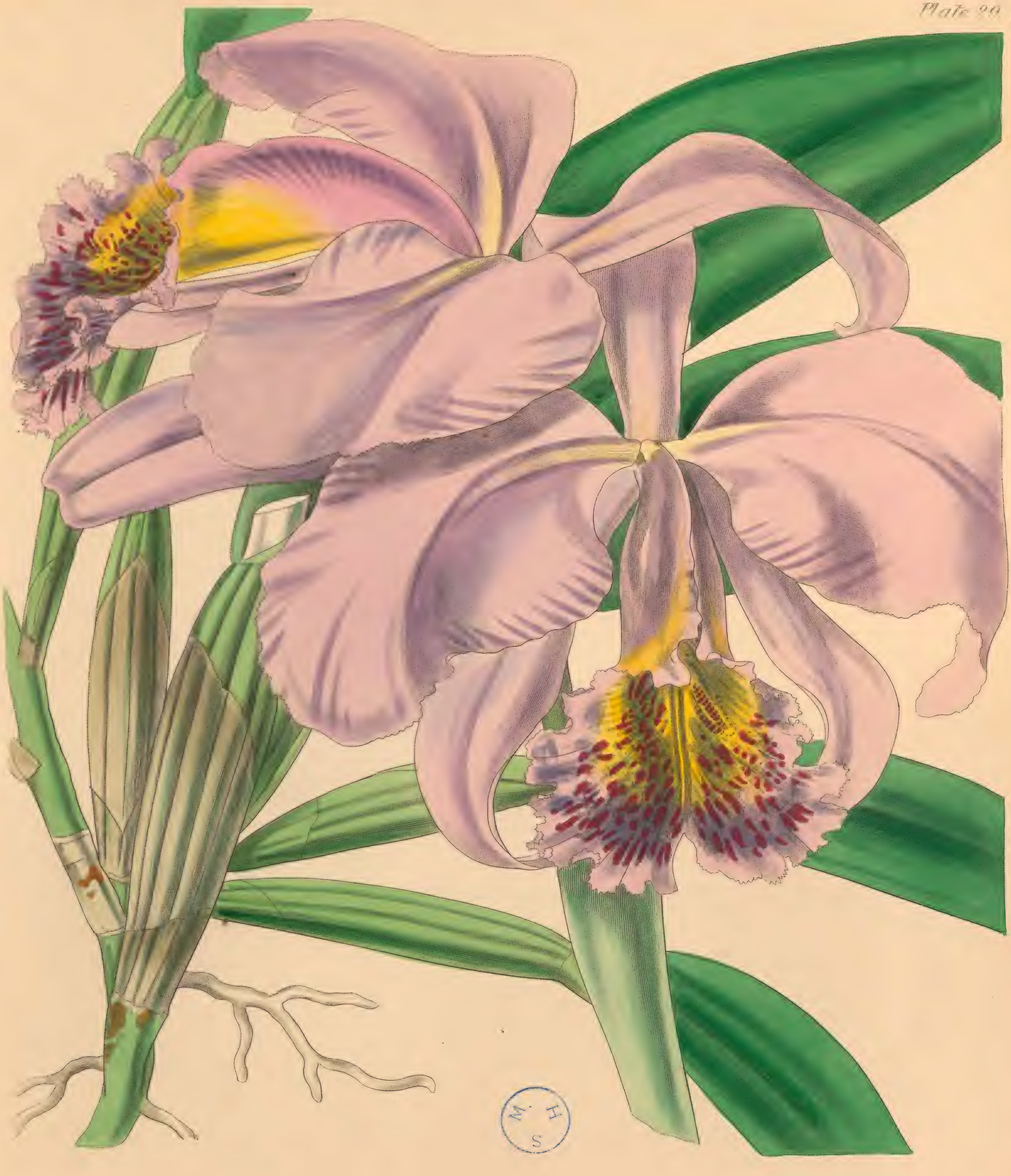
M. H. S.

Fitch, del. et lith.

Reeve, imp.

Cattleya labiata.

Plate 29 √

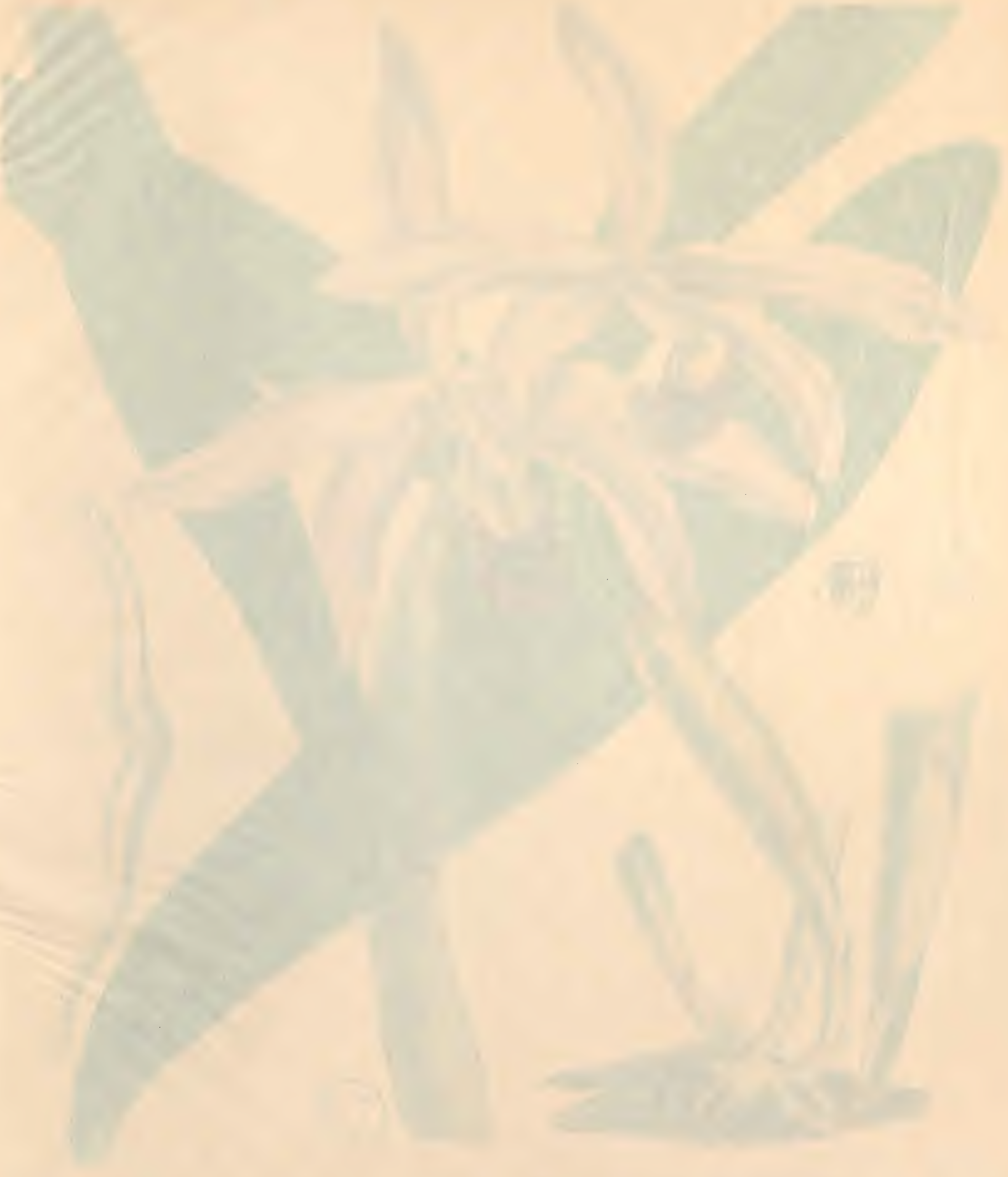


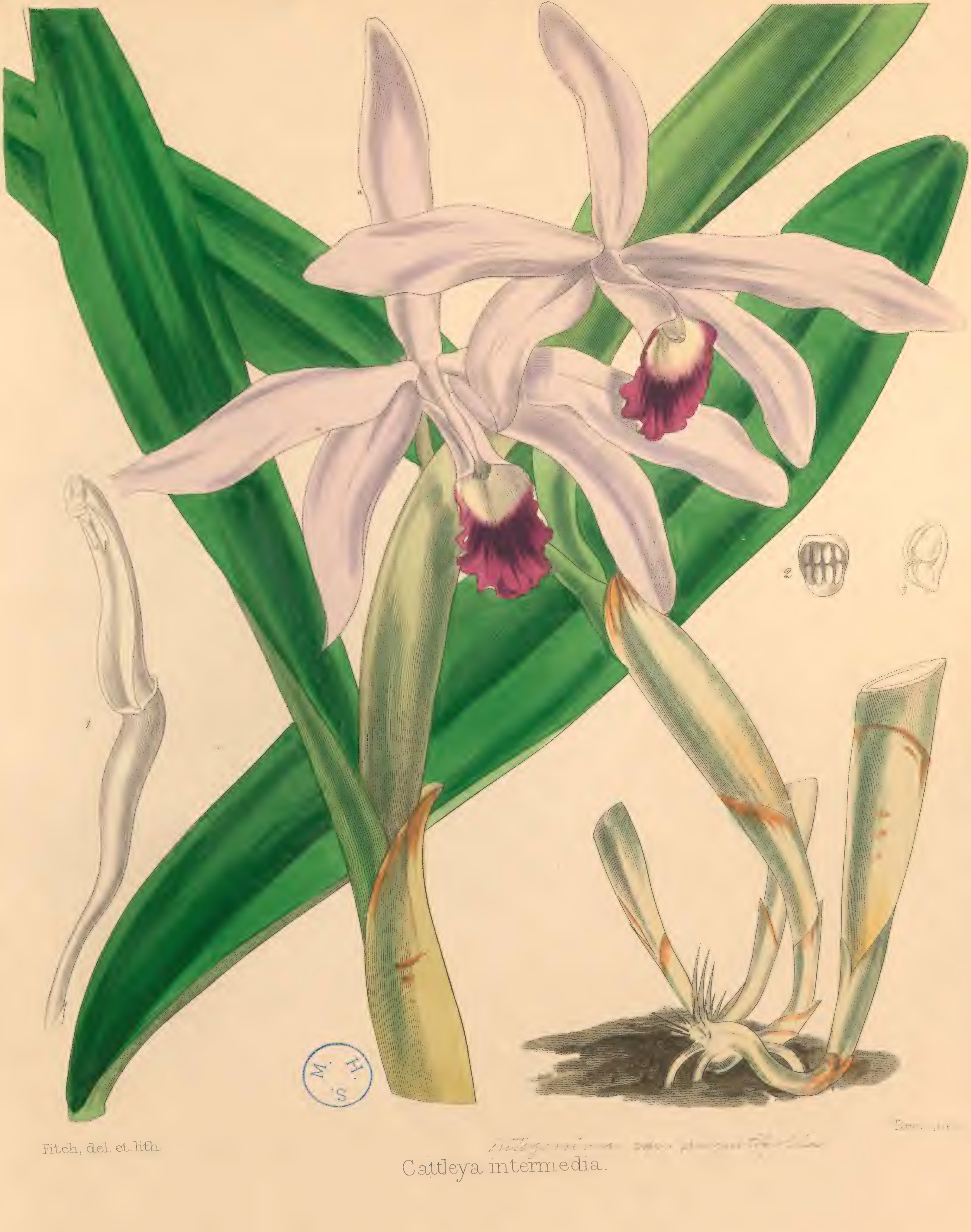
M H S

Fitch del. et lith.

Reeve imp.

Cattleya Moſsiæ.





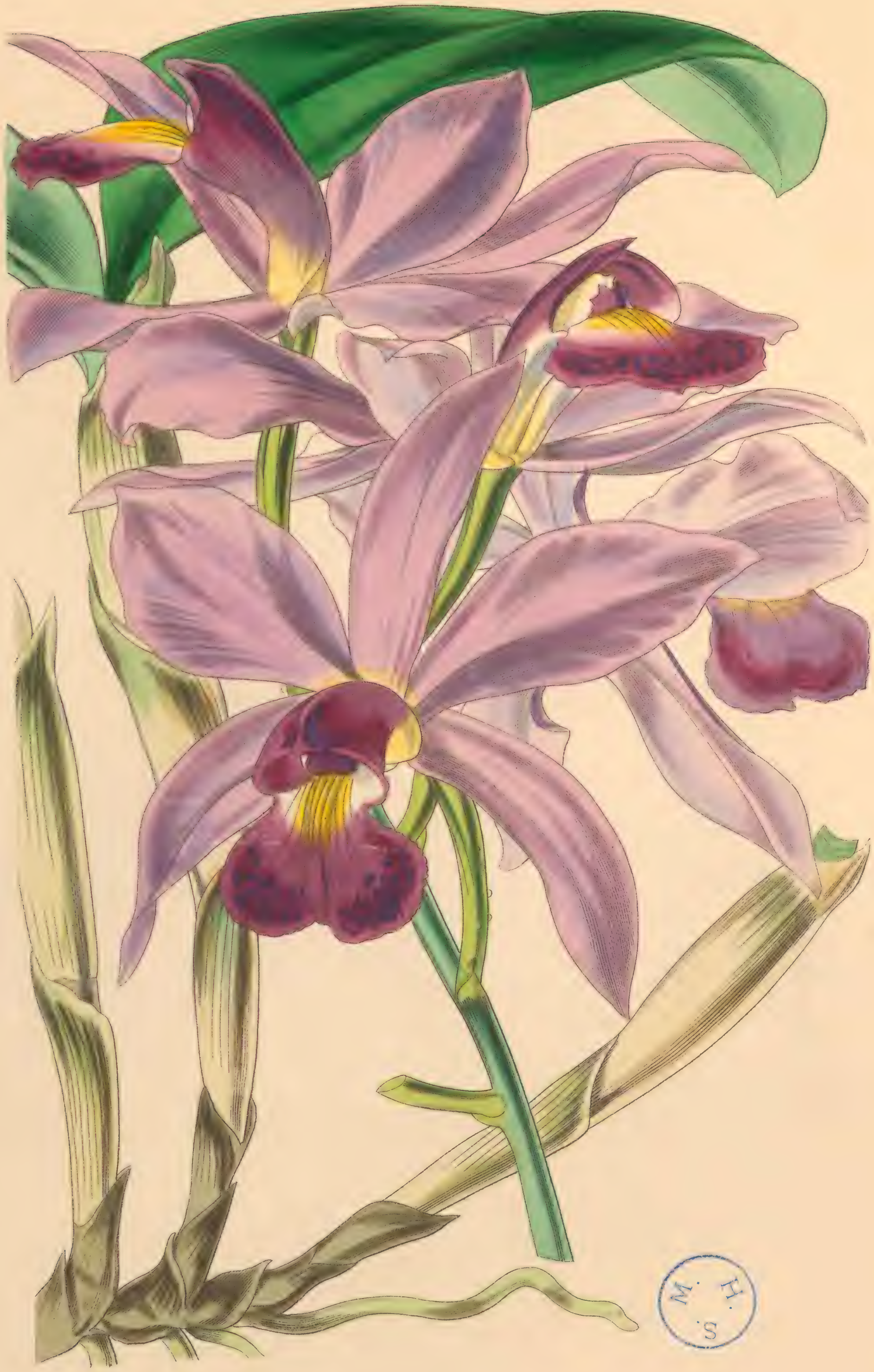
M. H. S.

Fitch, del. et. lith.

[illegible]

Reeve, imp.

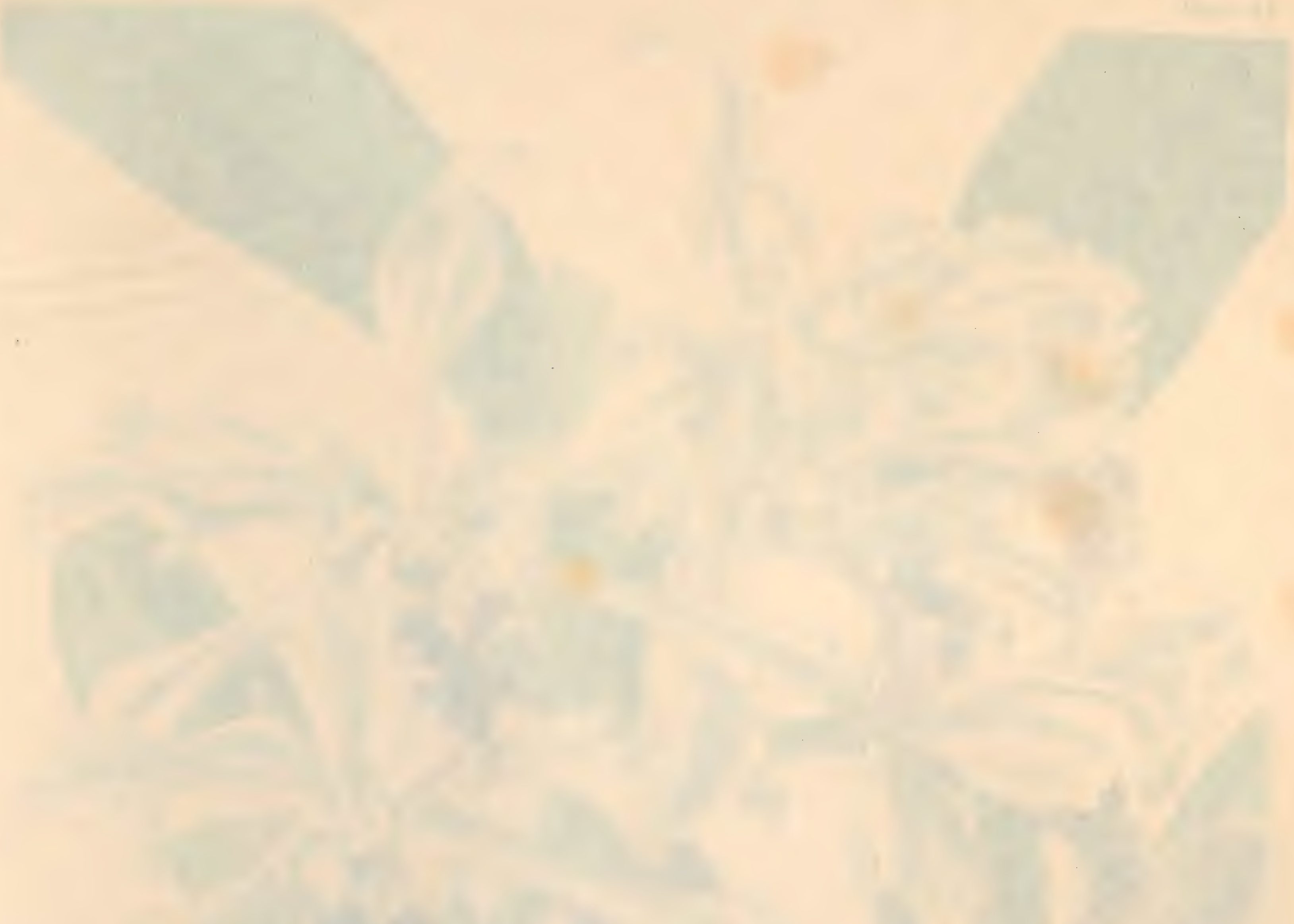
Cattleya intermedia.

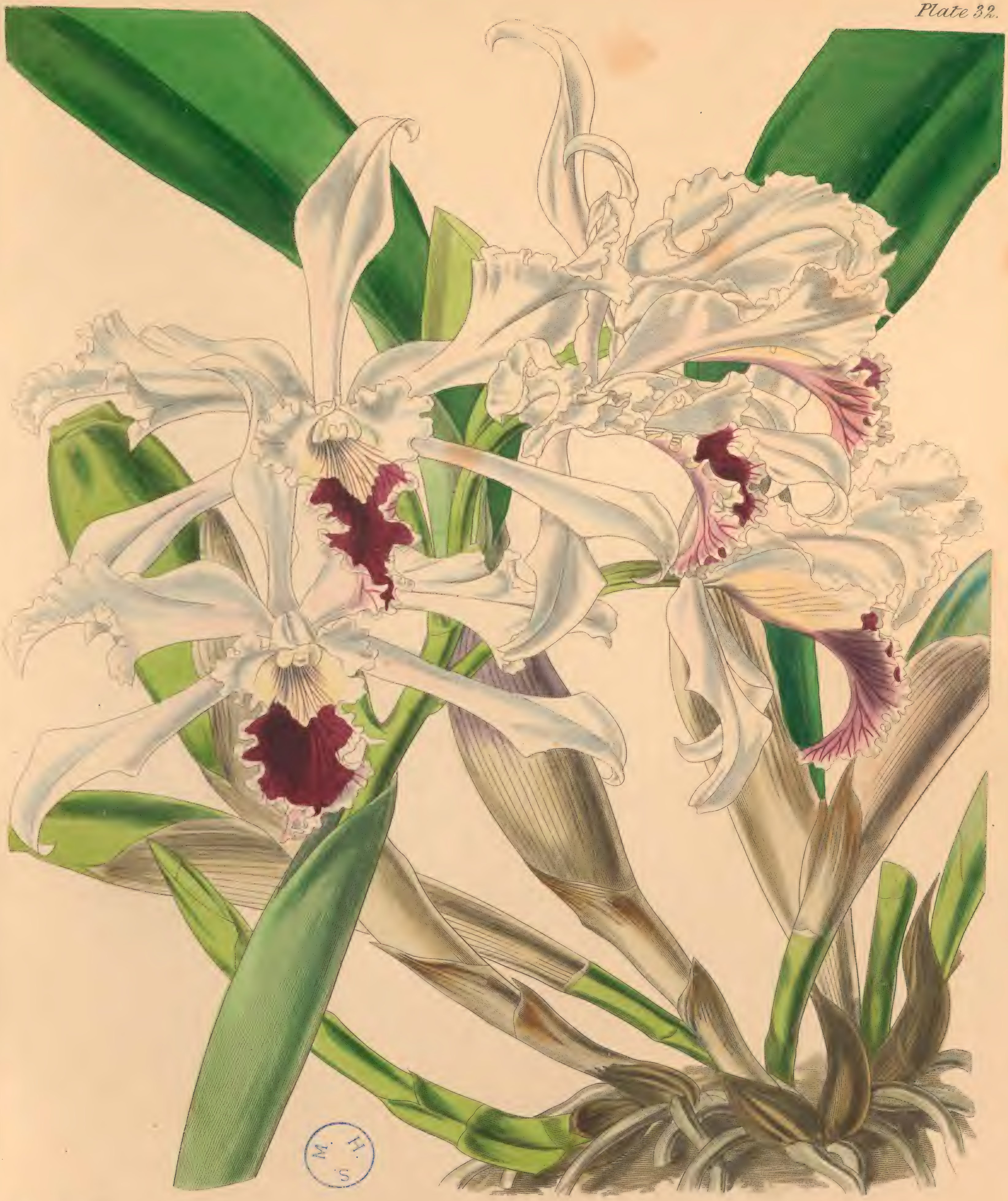


M. H. S.

Fitch, del. et. lith. Reeve, imp.

Cattleya superba.



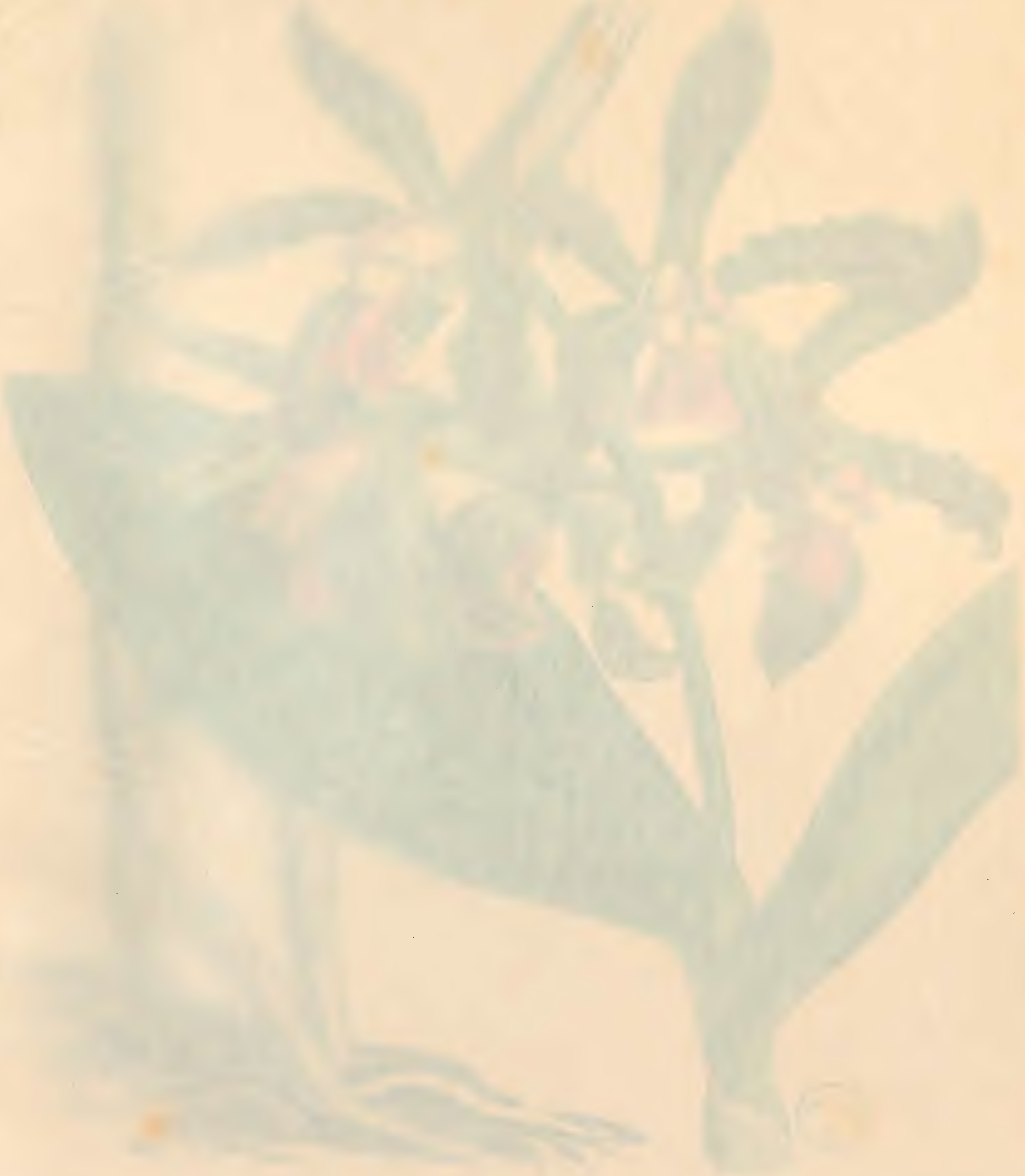


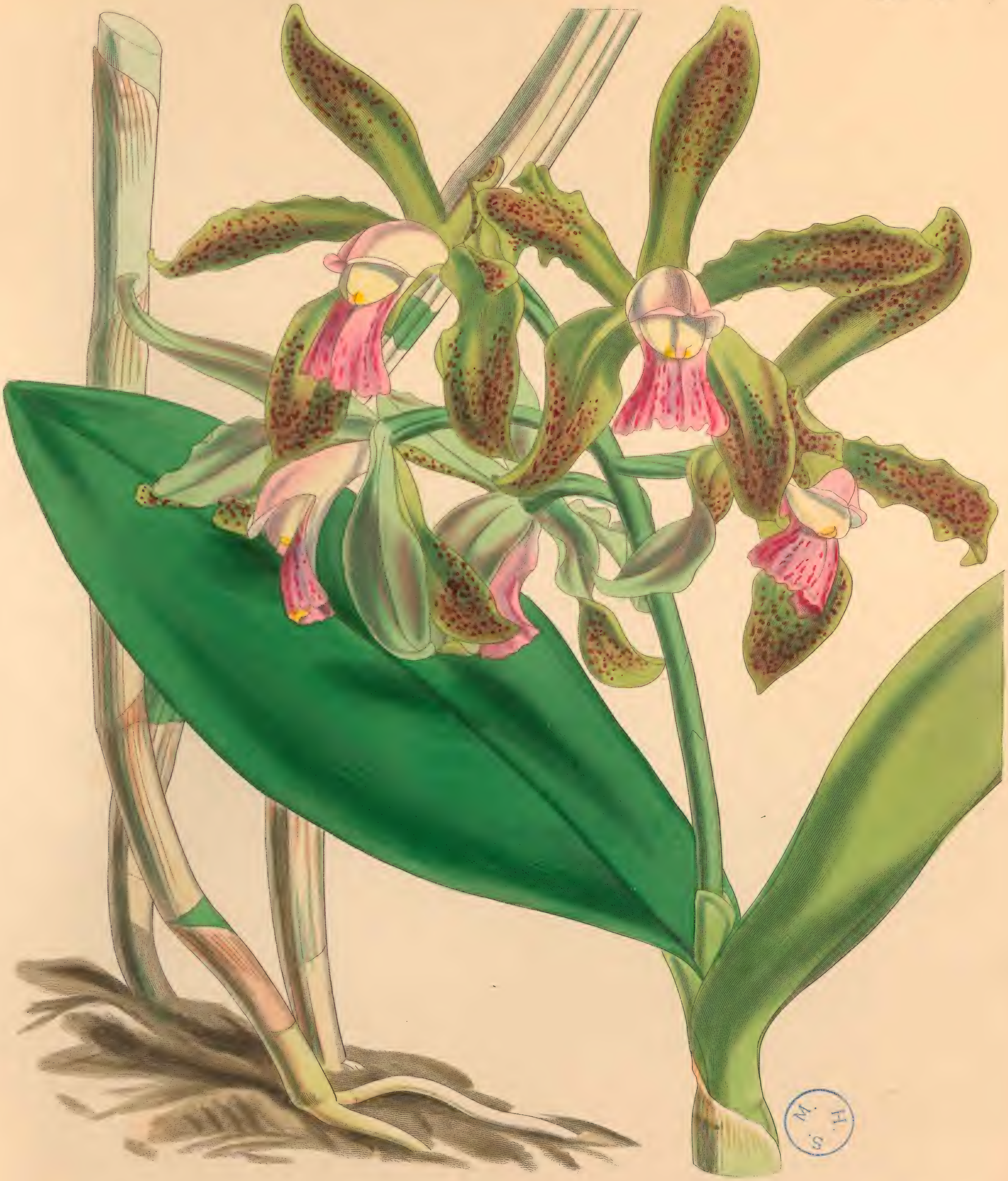
M. H. S.

Fitch, del. et. lith.

Reeve, imp.

Cattleya crispa.



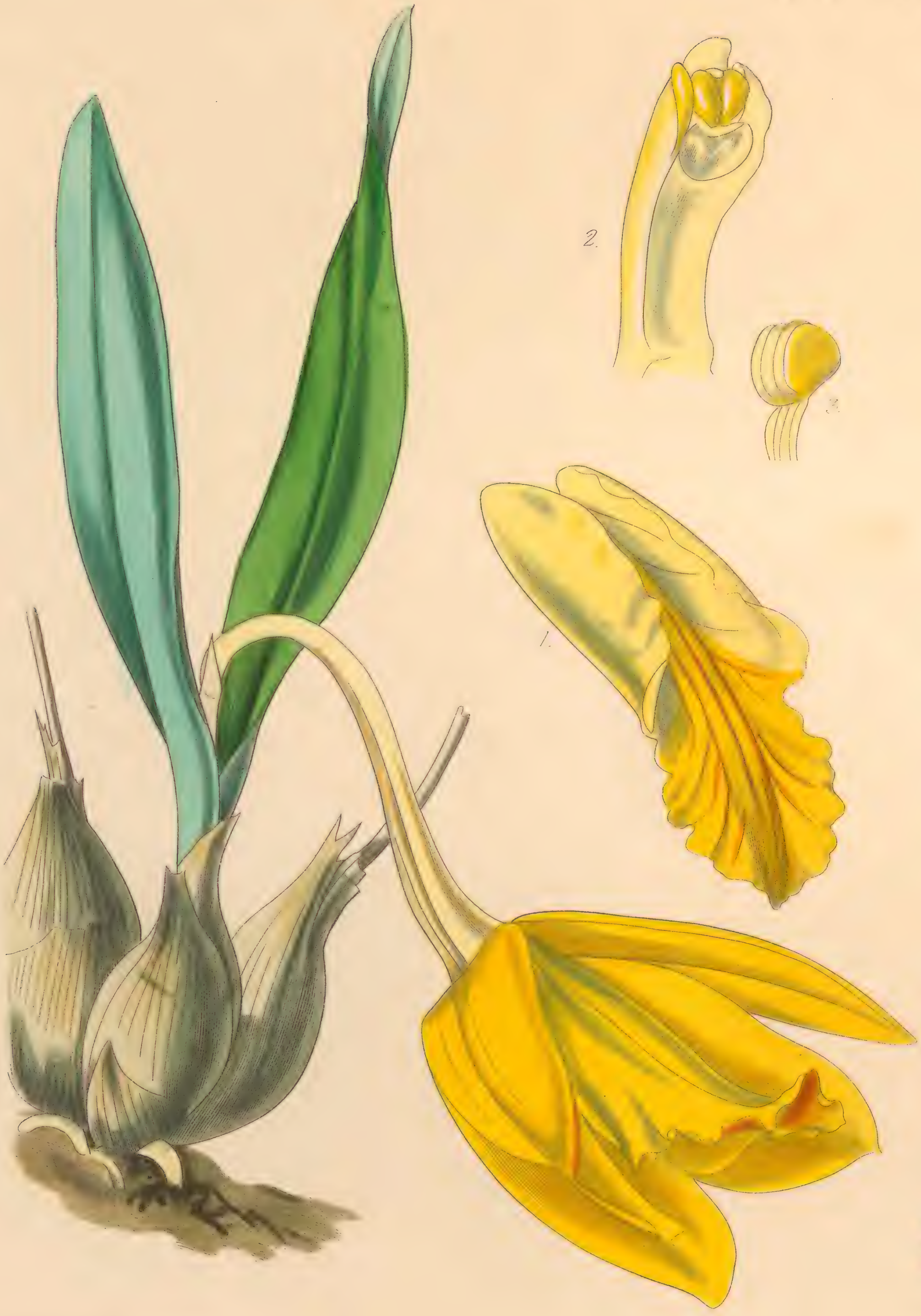


M. H. S.

Fitch, del. et. sculp^t

Reeve, imp.

Cattleya guttata; var. β Russelliana

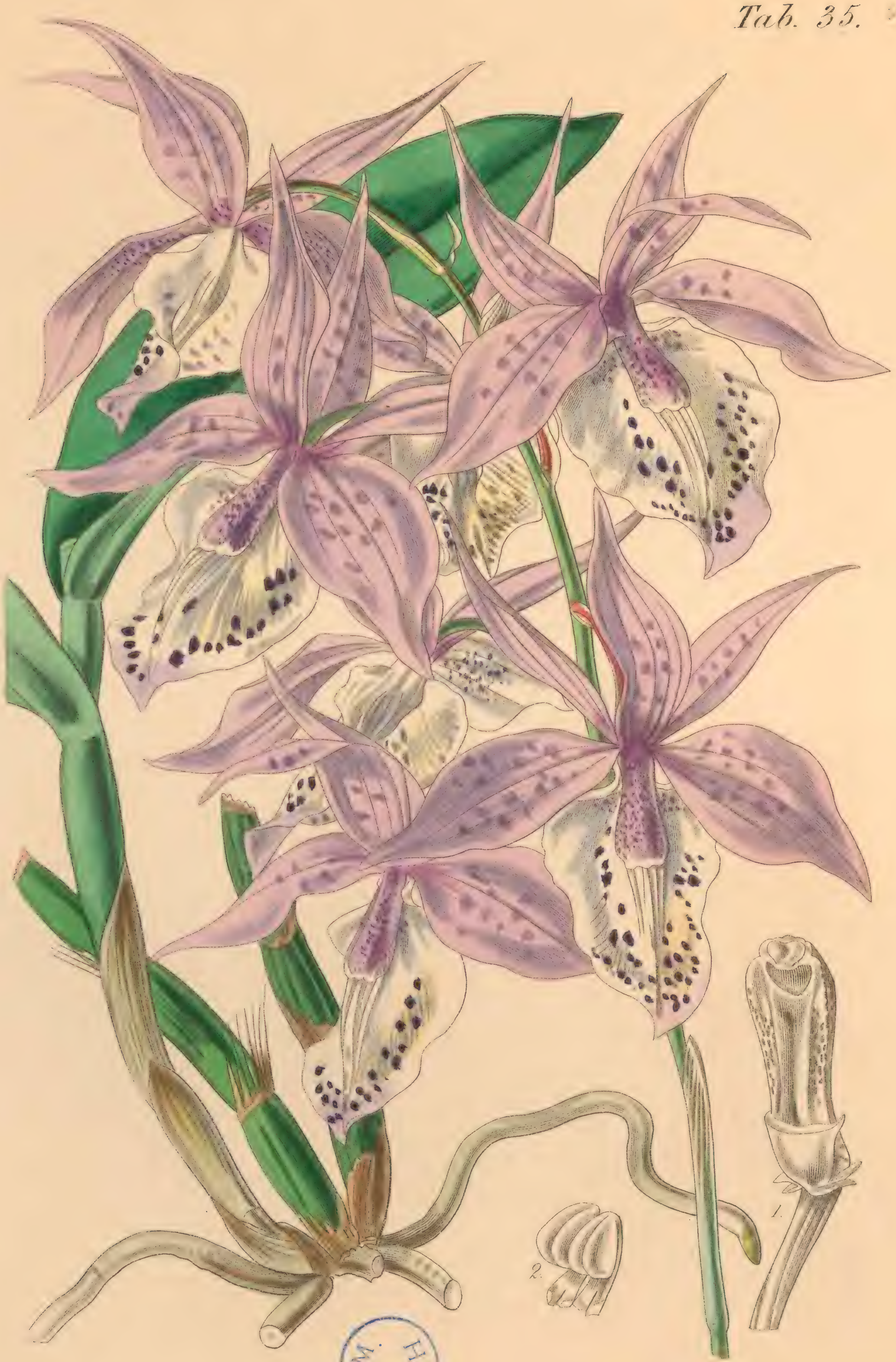


M. H. S.

Fitch, del. et. sculp^{t} Reeve, imp:

Cattleya citrina.

Tab. 35.



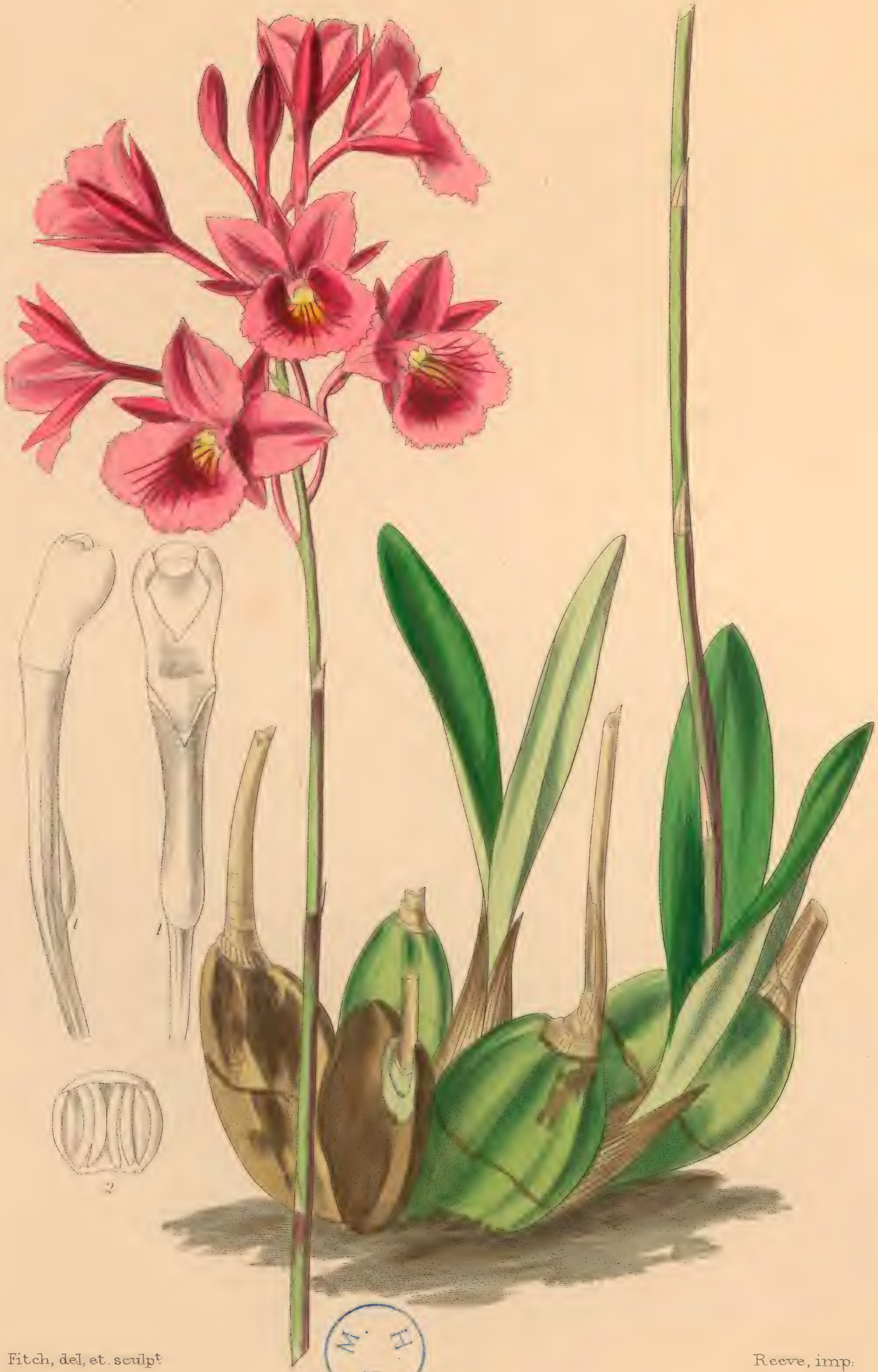
M. H. S.

Fitch, del. et. sculp^{t}.

Reeve, imp.

Barkeria spectabilis.

Tab. 36.



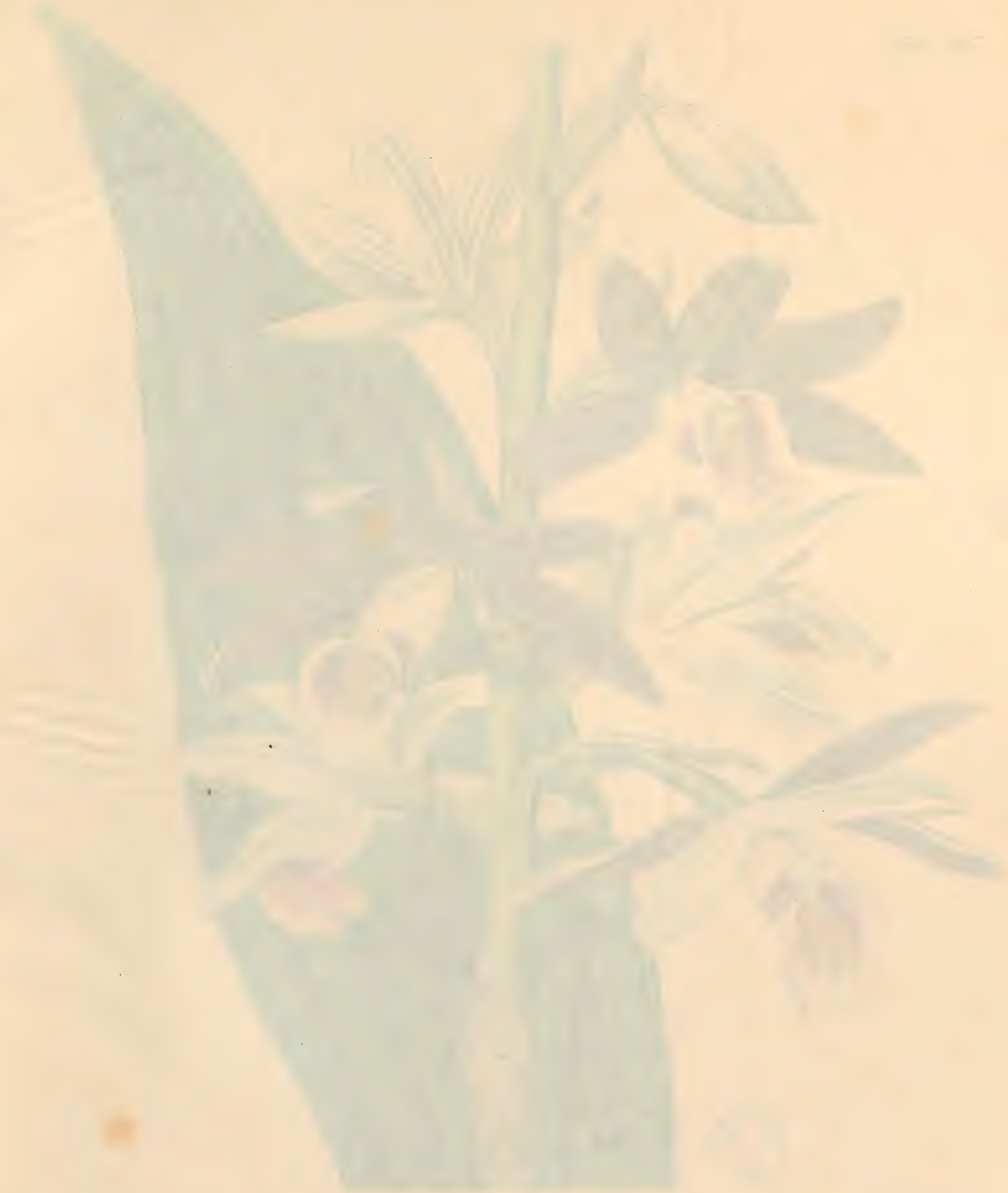
Fitch, del, et. sculp^t

Reeve, imp.

M. H. S.

sanguinea

Broughtonia ~~coccinea~~.



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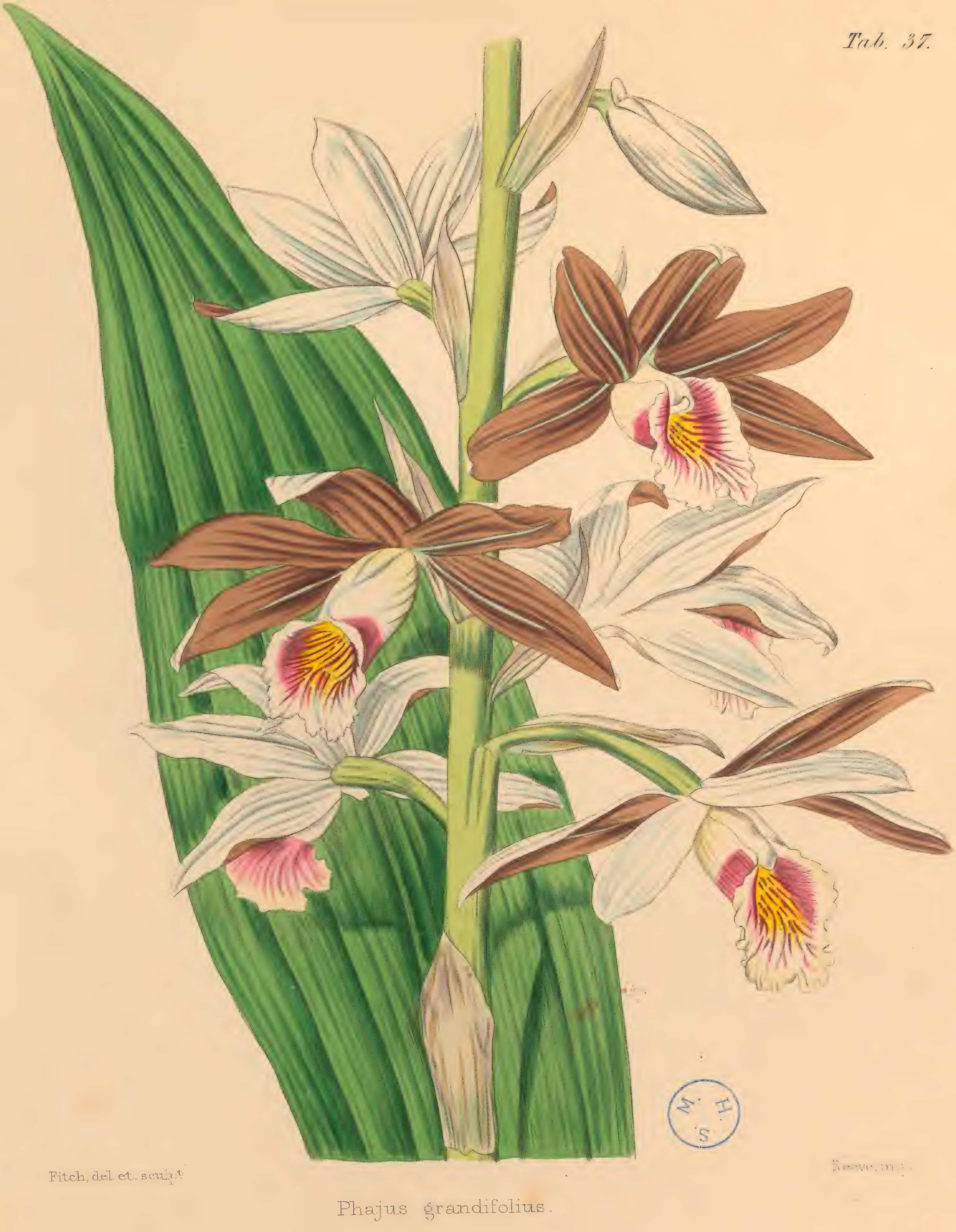
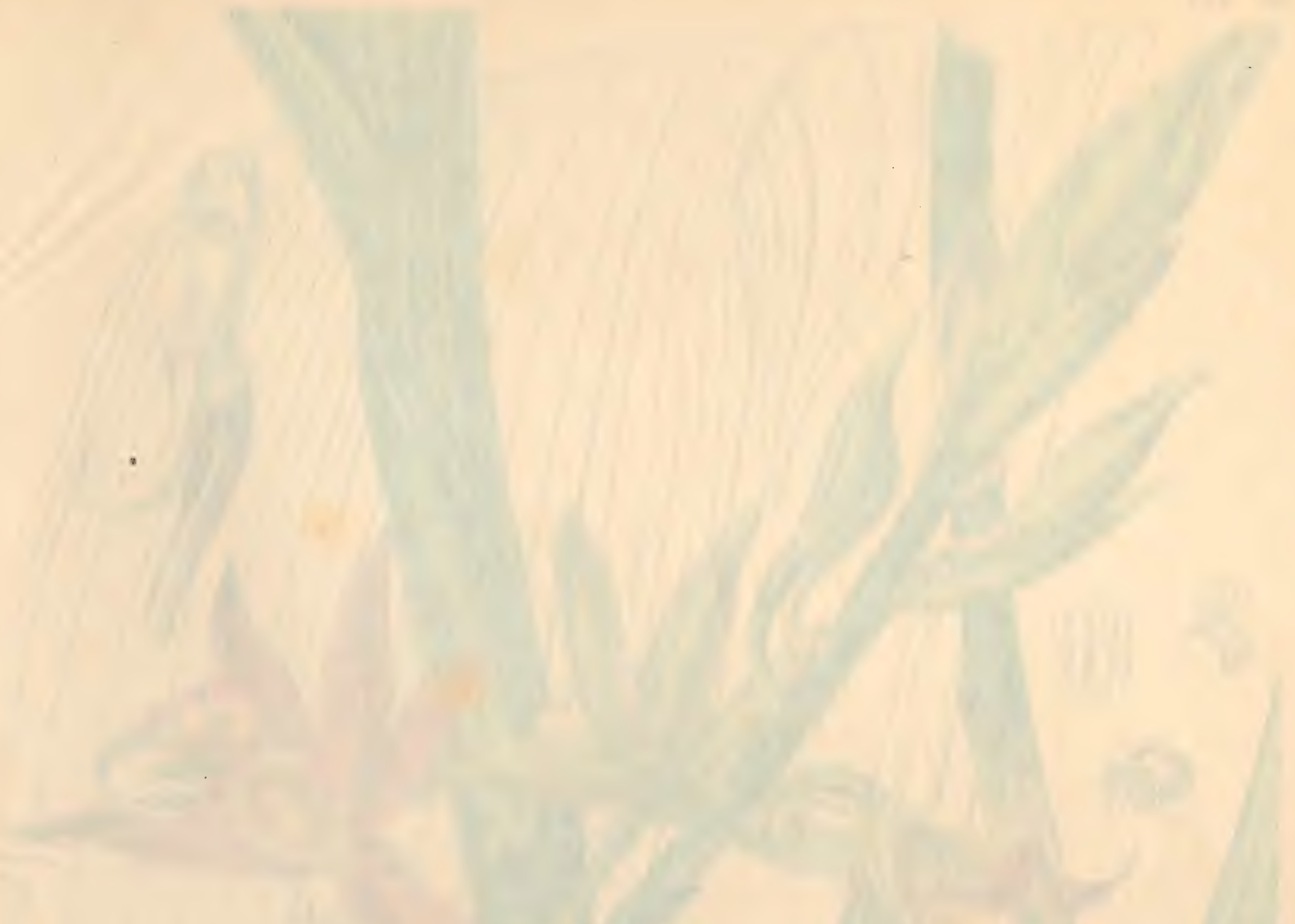


Fitch, del. et. sculp.t

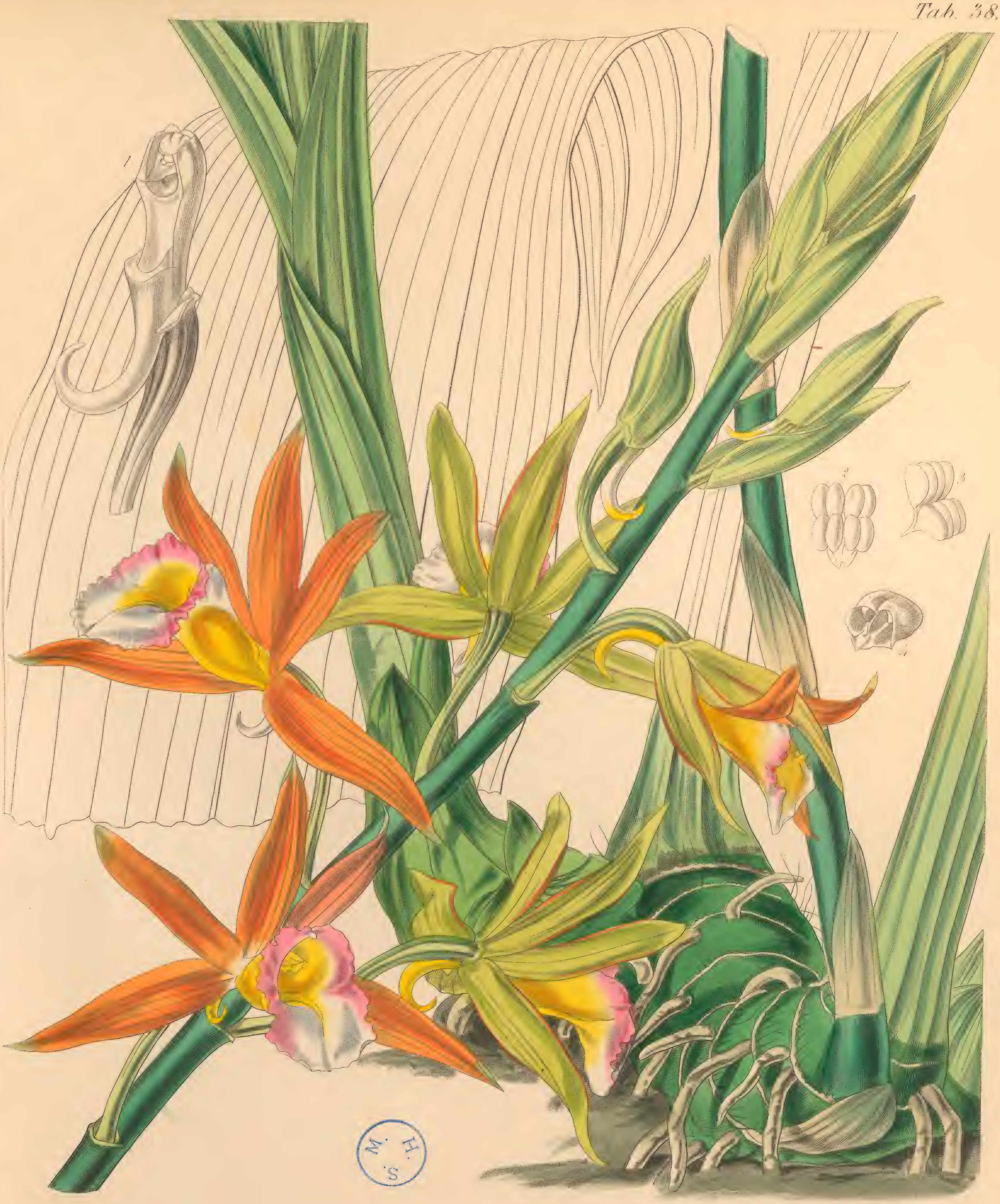
Reeve, imp.

Phajus grandifolius.

M. H. S.



Tab. 38.

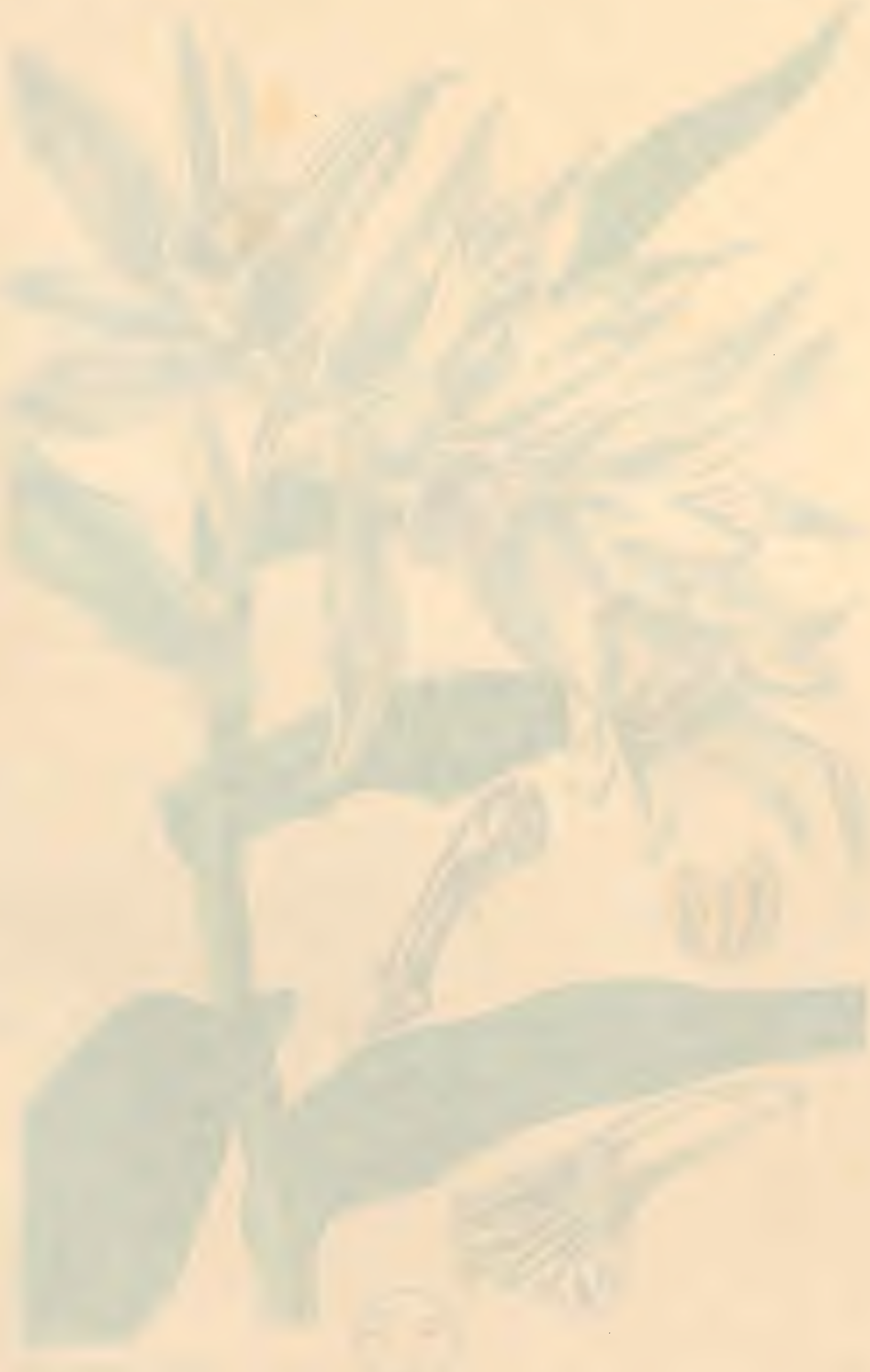


M. H. S.

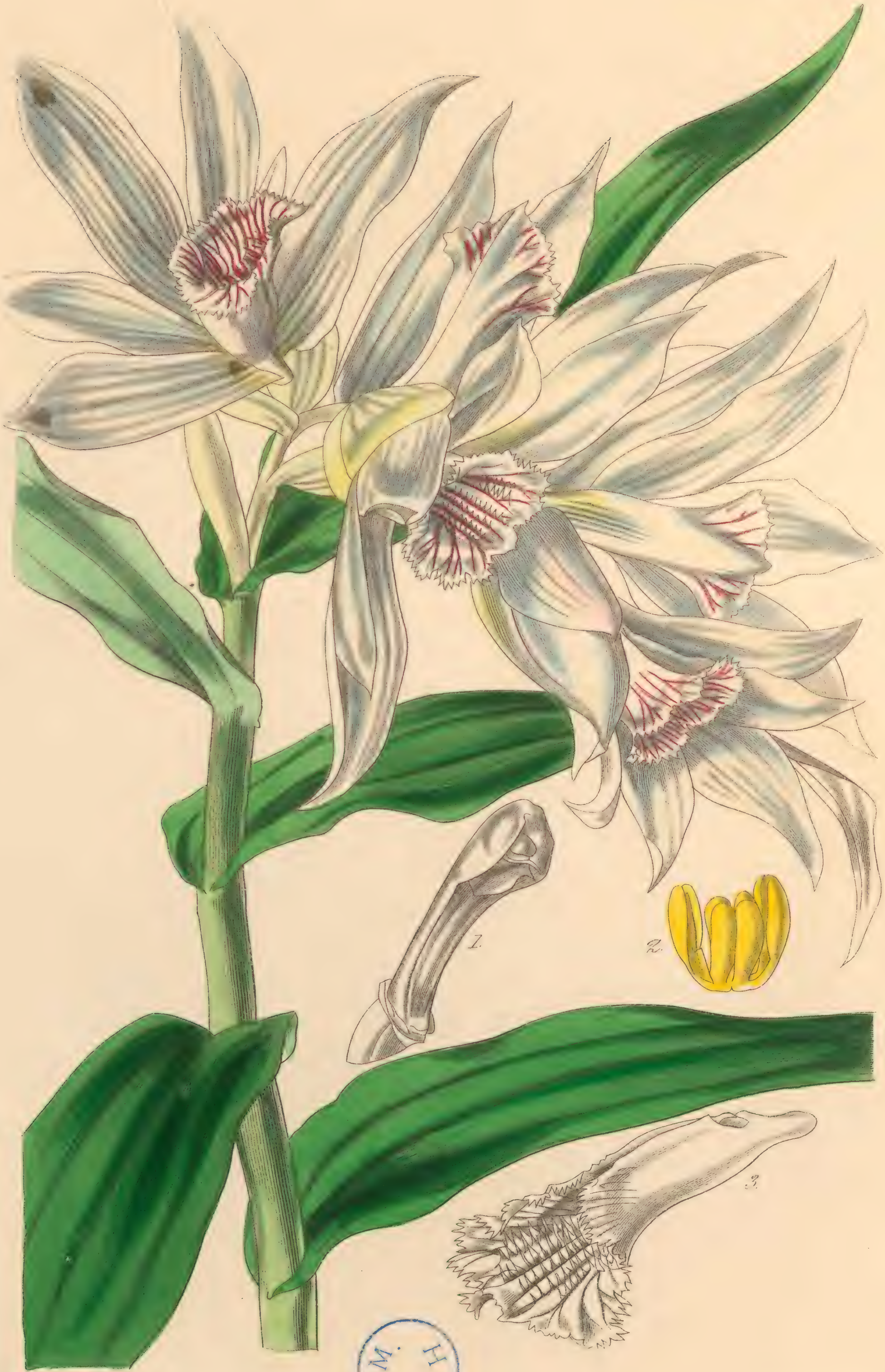
Fitch, del. et. Sculp.t

Reeve, imp.

Phajus bicolor.



Tab. 39. ✓



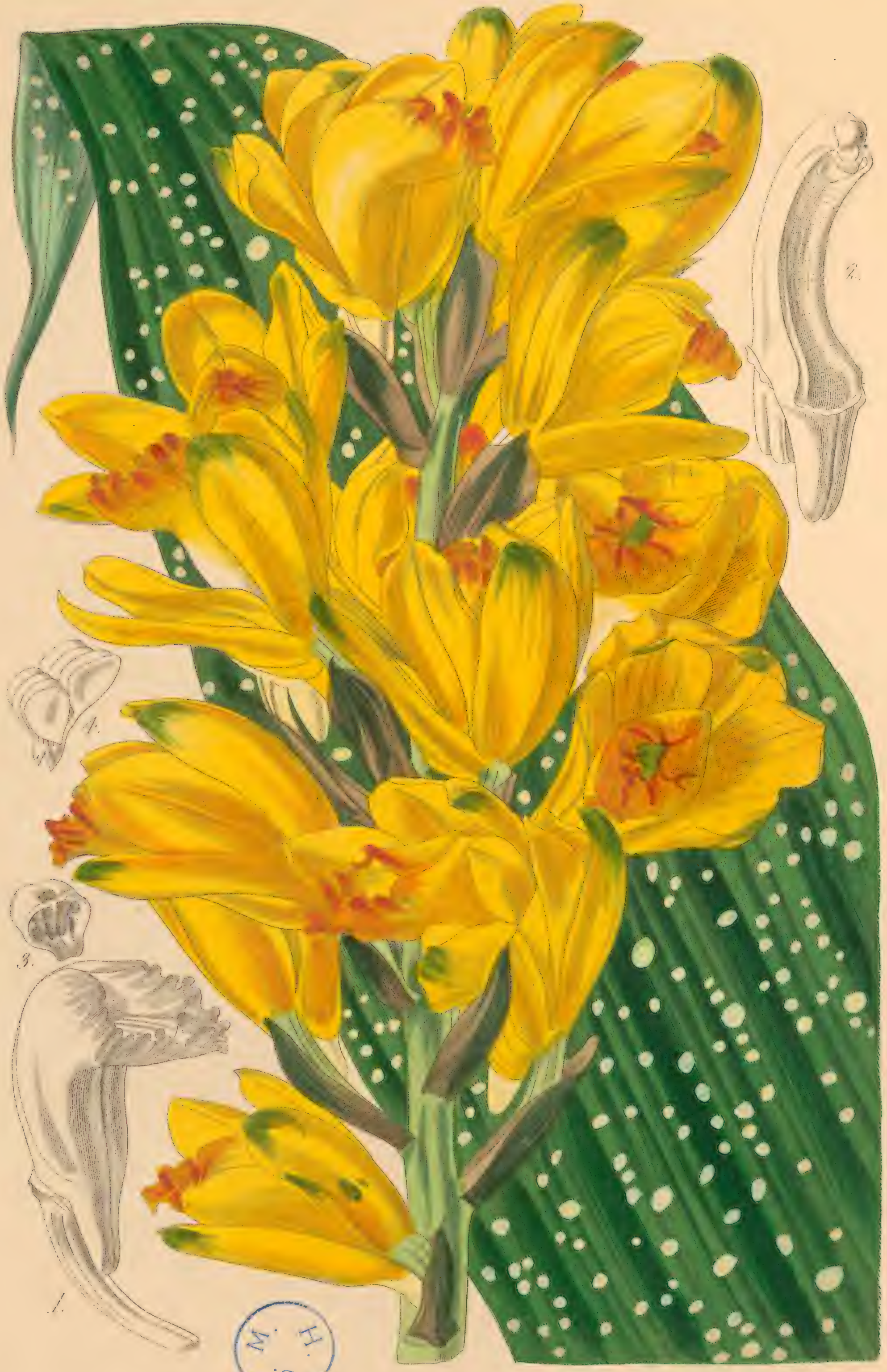
M. H. S.

Fitch, del. et. sculpt.

Reeve, imp.

Phajus albus.

Tab. 40.

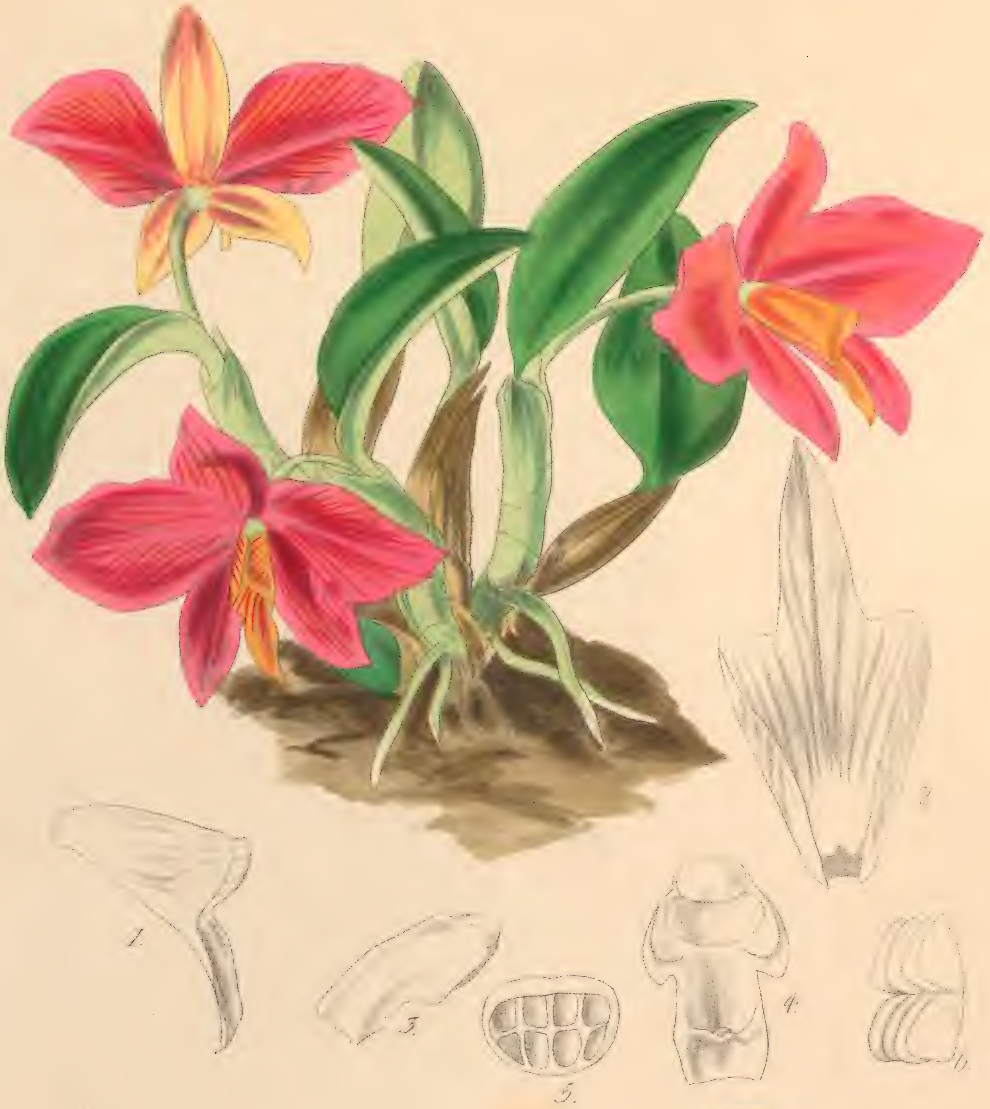


M. H. S.

Fitch, del. et. sculp^t.

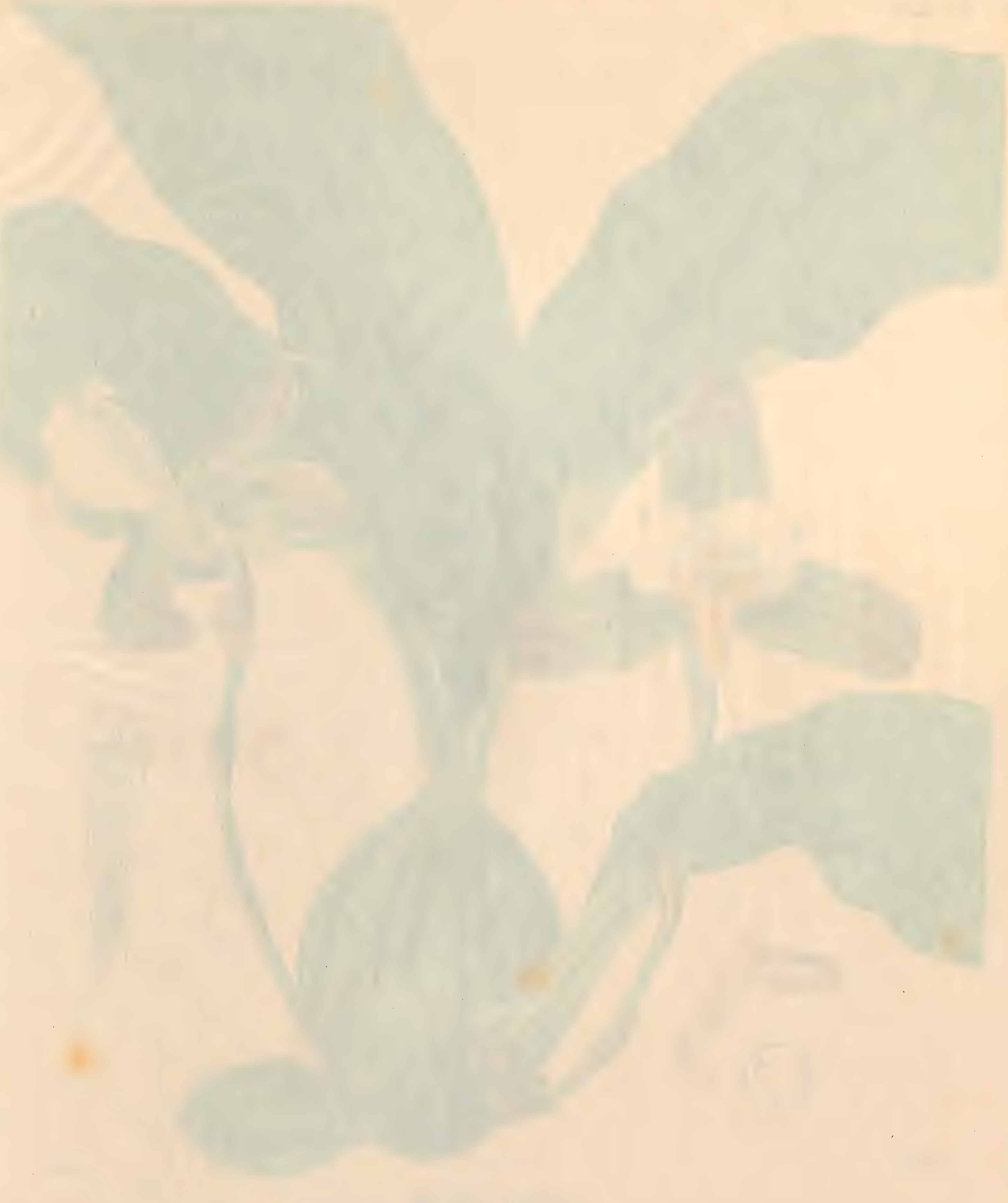
Reeve, imp.

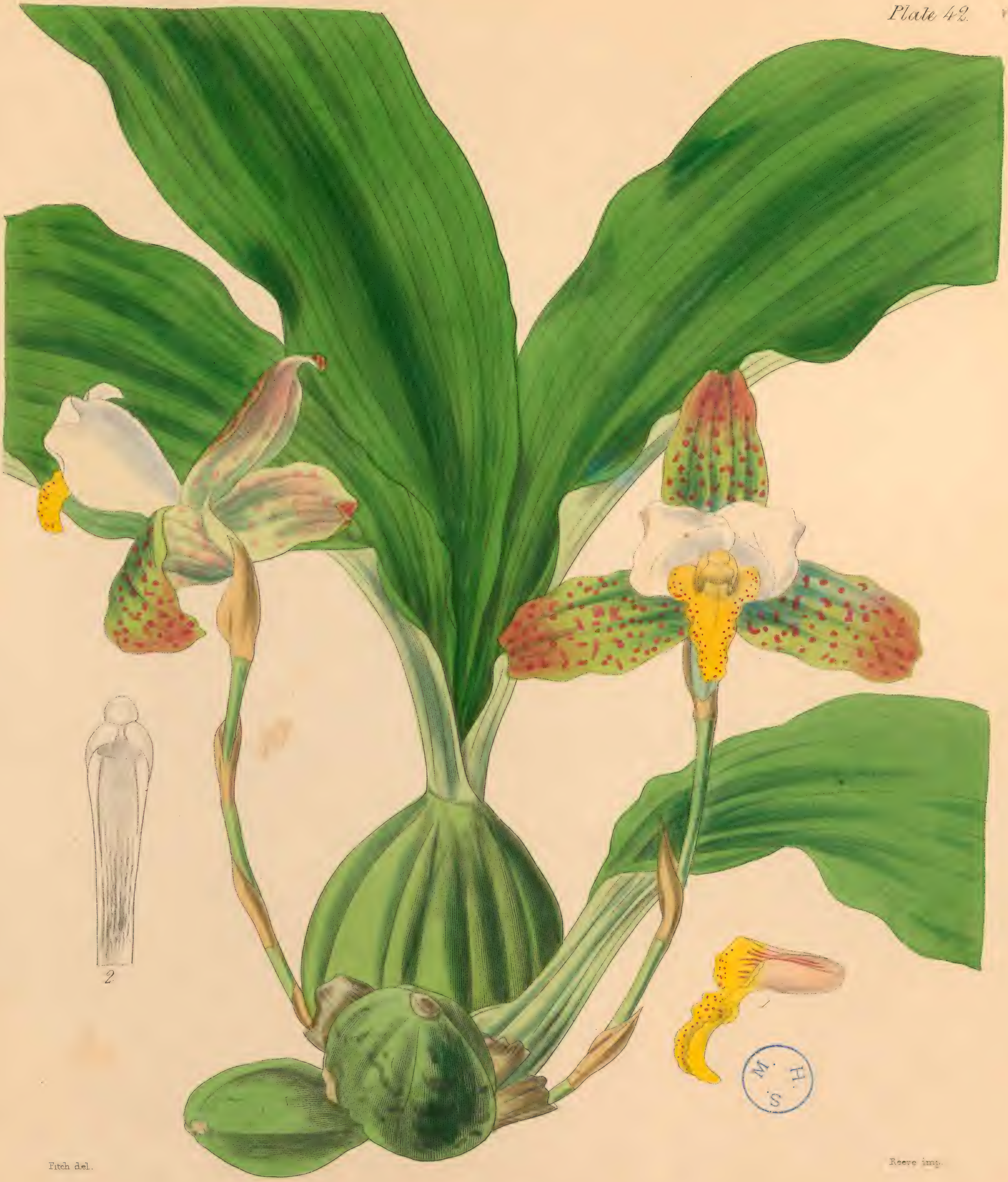
Phajus maculatus.



M. H. S.

[illegible]





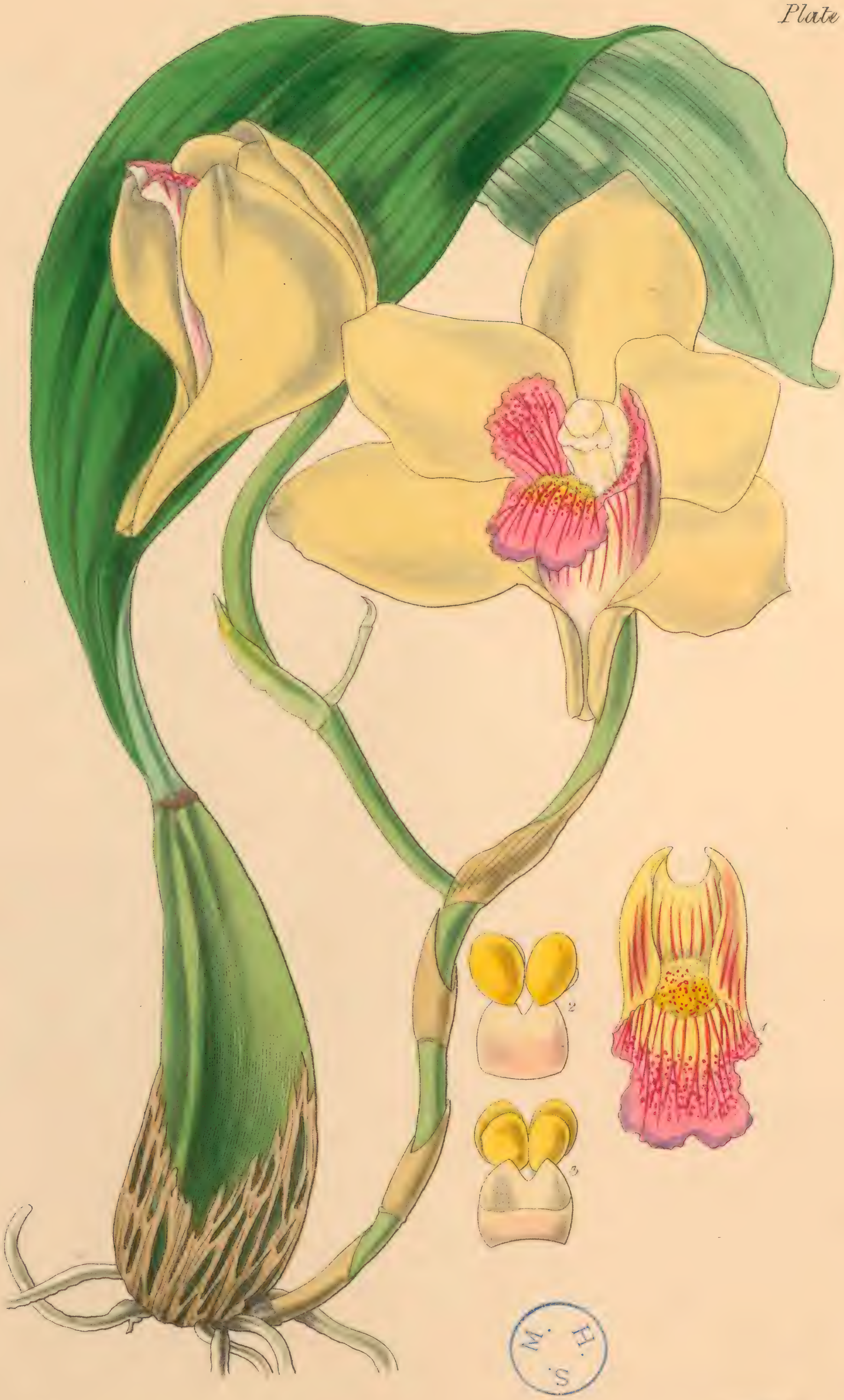
M. H. S.

Fitch del.
Reeve imp.

Maxillaria Deppii.

[illegible]

Plate 43. ✓



M. H. S.

Fitch del.

Reeve imp.

Maxillaria Harrisoniæ.

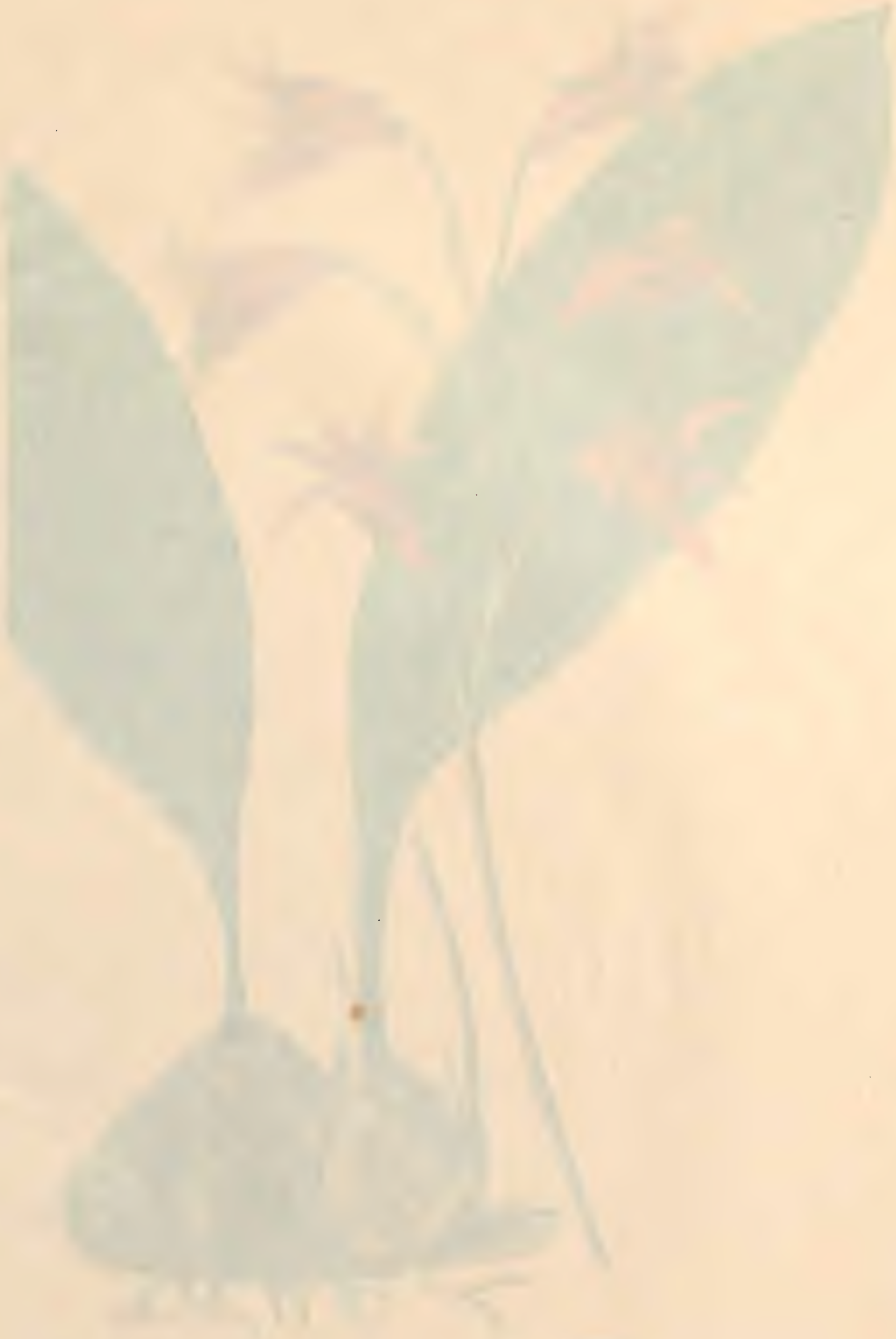
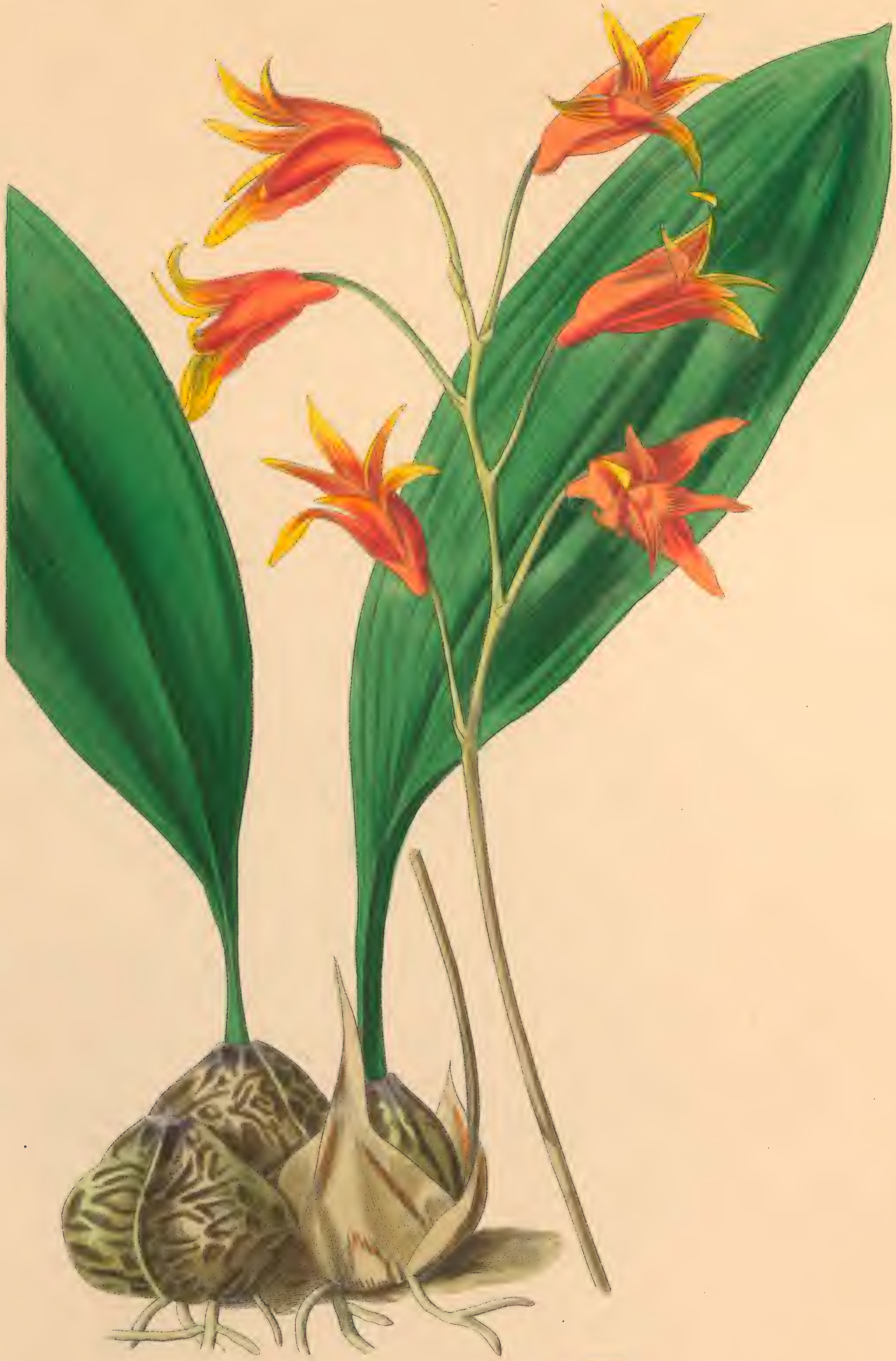


Plate 44



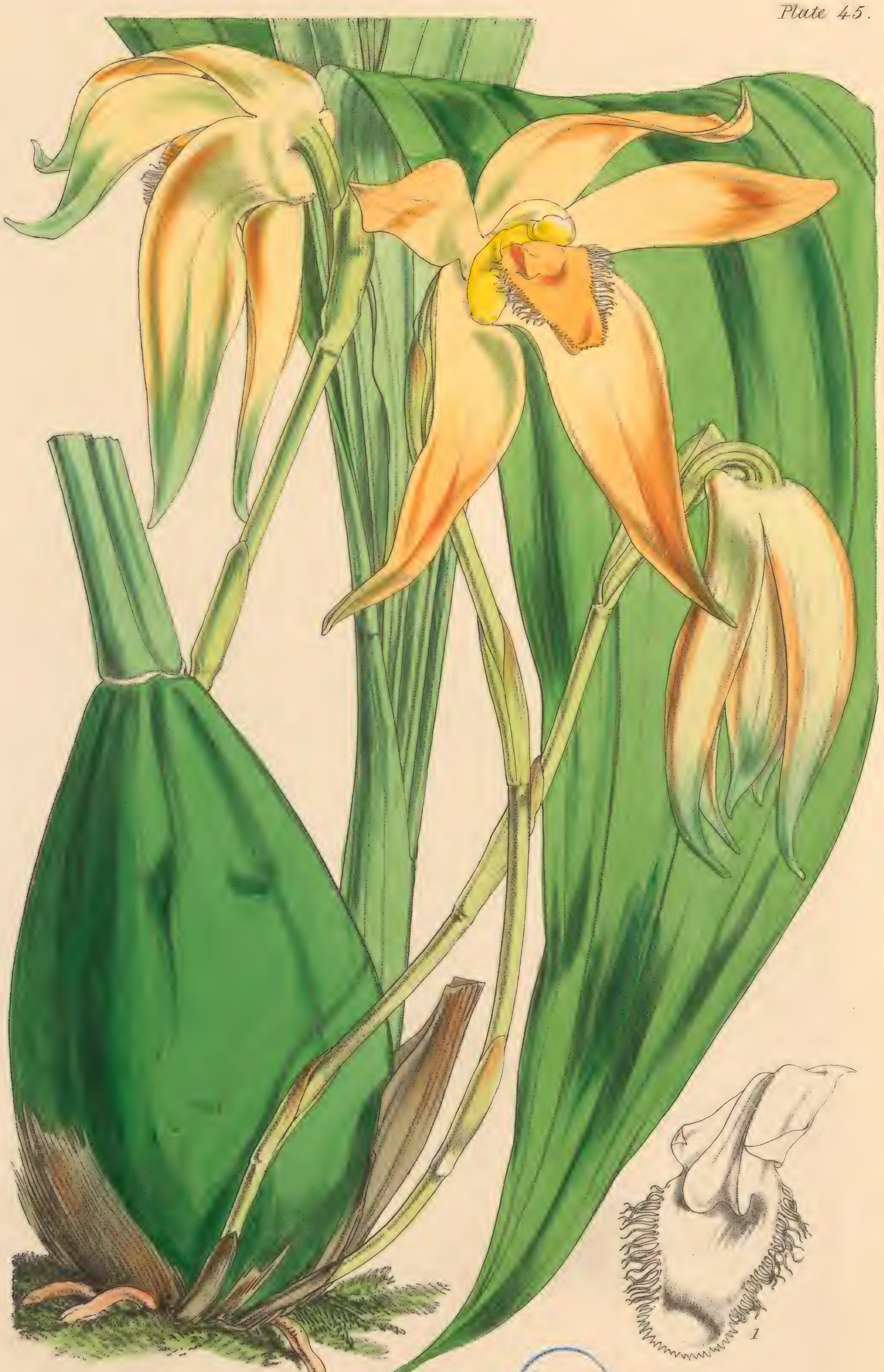
M. H. S.

Fitch del et lith.

Reeve imp

Maxillaria aureo-fulva.

Plate 45. √

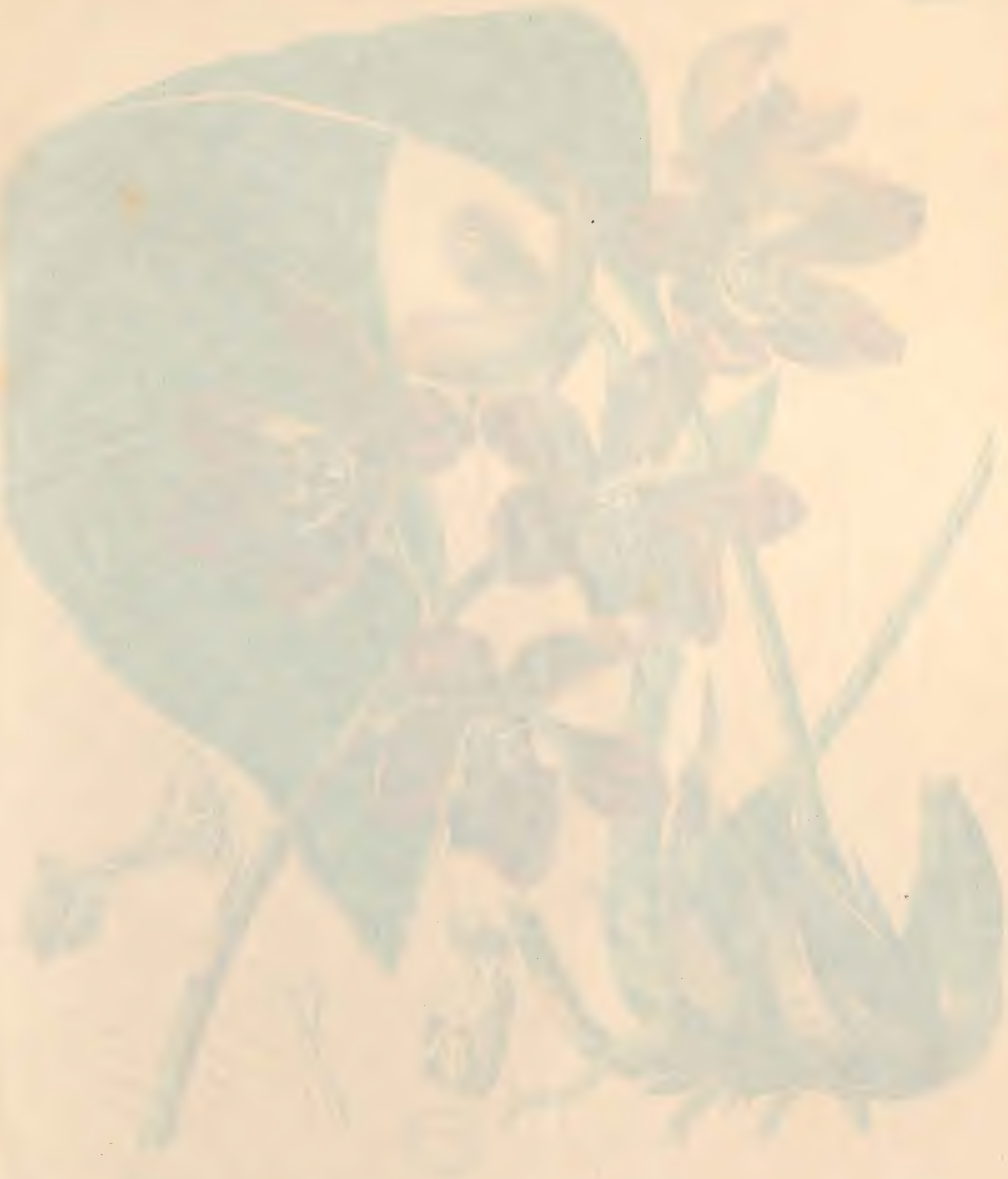


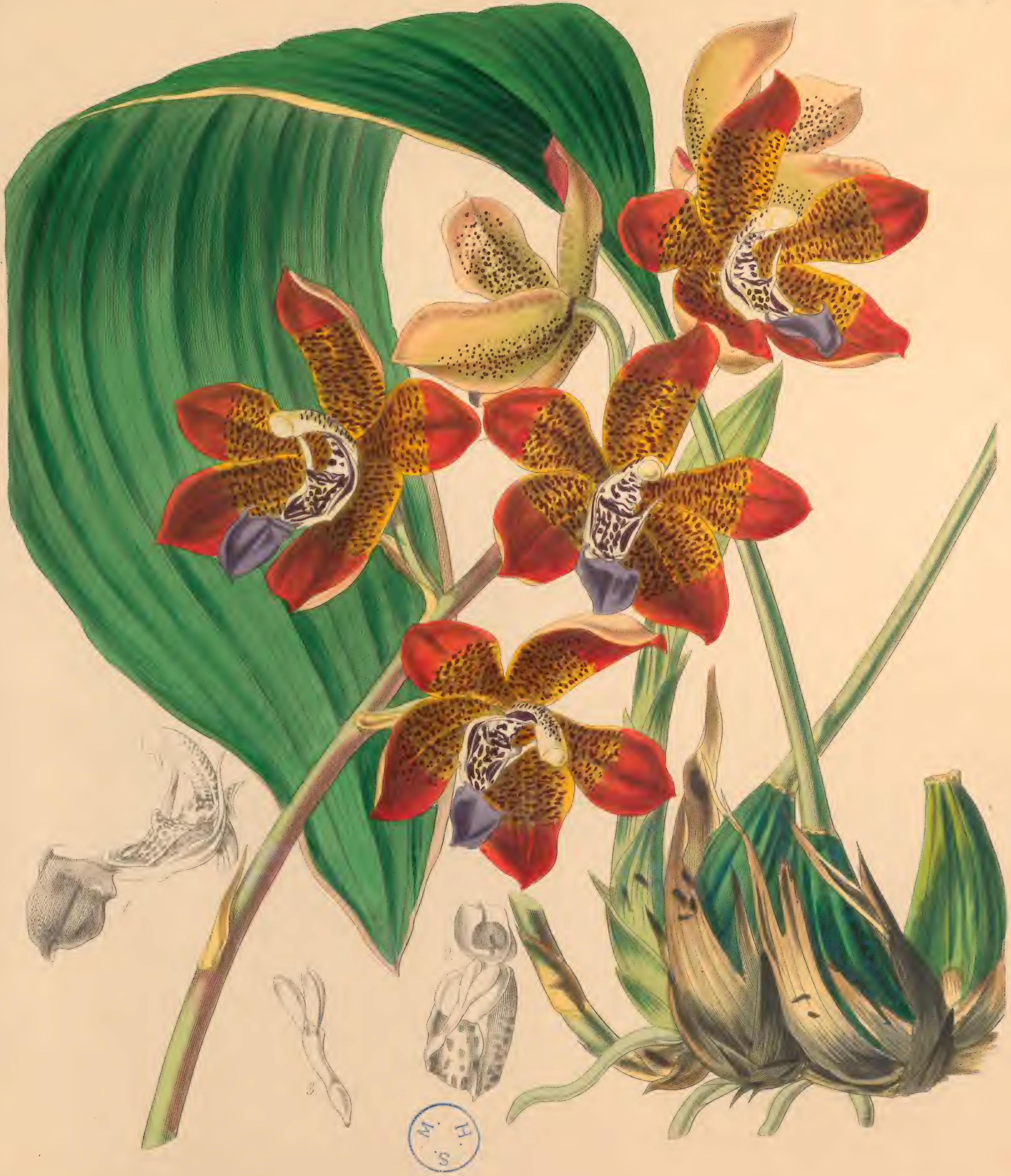
M. H. S.

Fitch del. et lith.

Reeve Benham & Reeve imp.

Maxillaria fulvescens





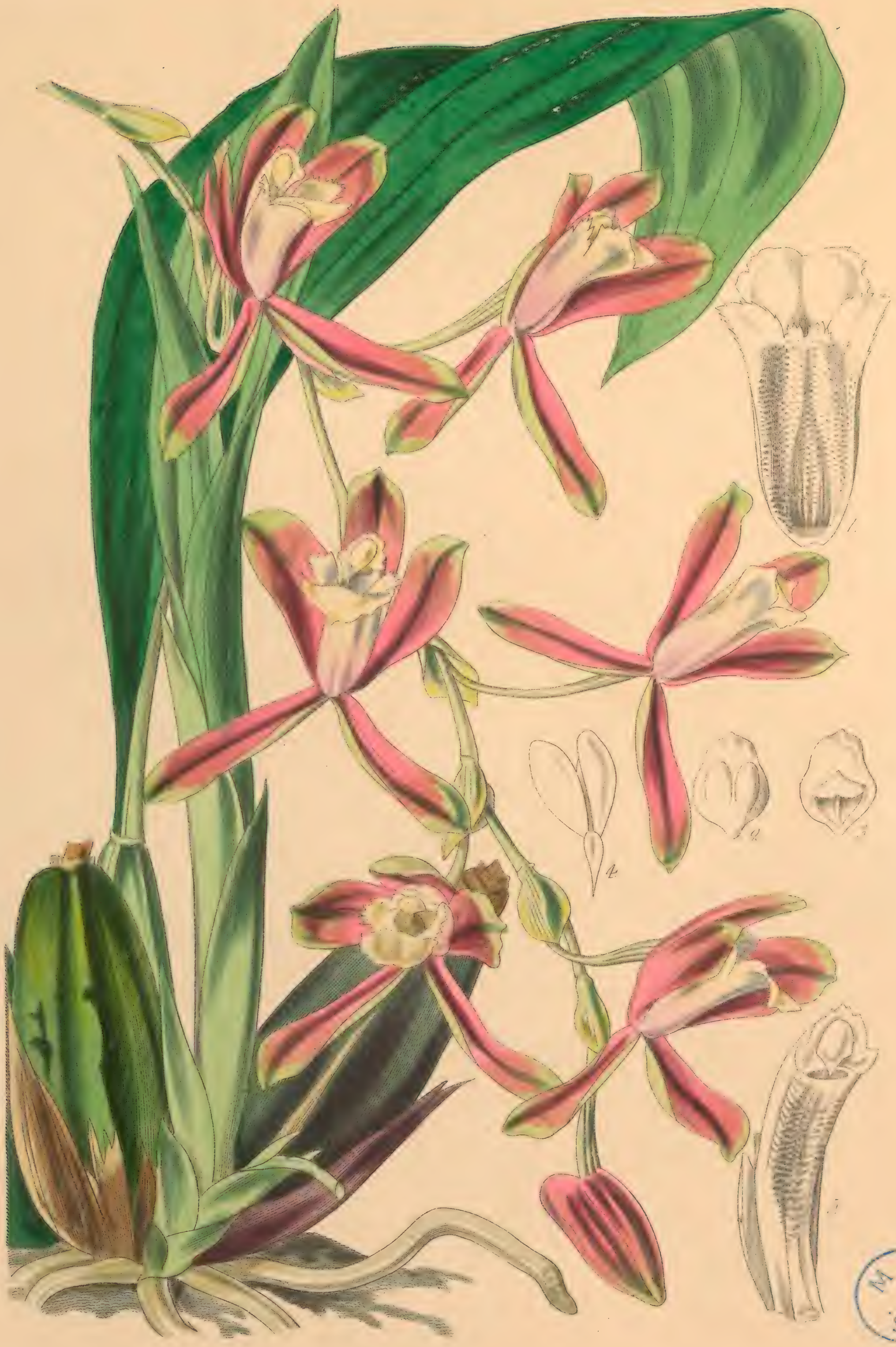
M. H. S.

Fitch del et lith.

Reeve imp

Houlletia Brocklehurstiana.

Plate 47.



M. H. S.

Fitch del et lith.

Reeve imp.

Batemania Colleyi.

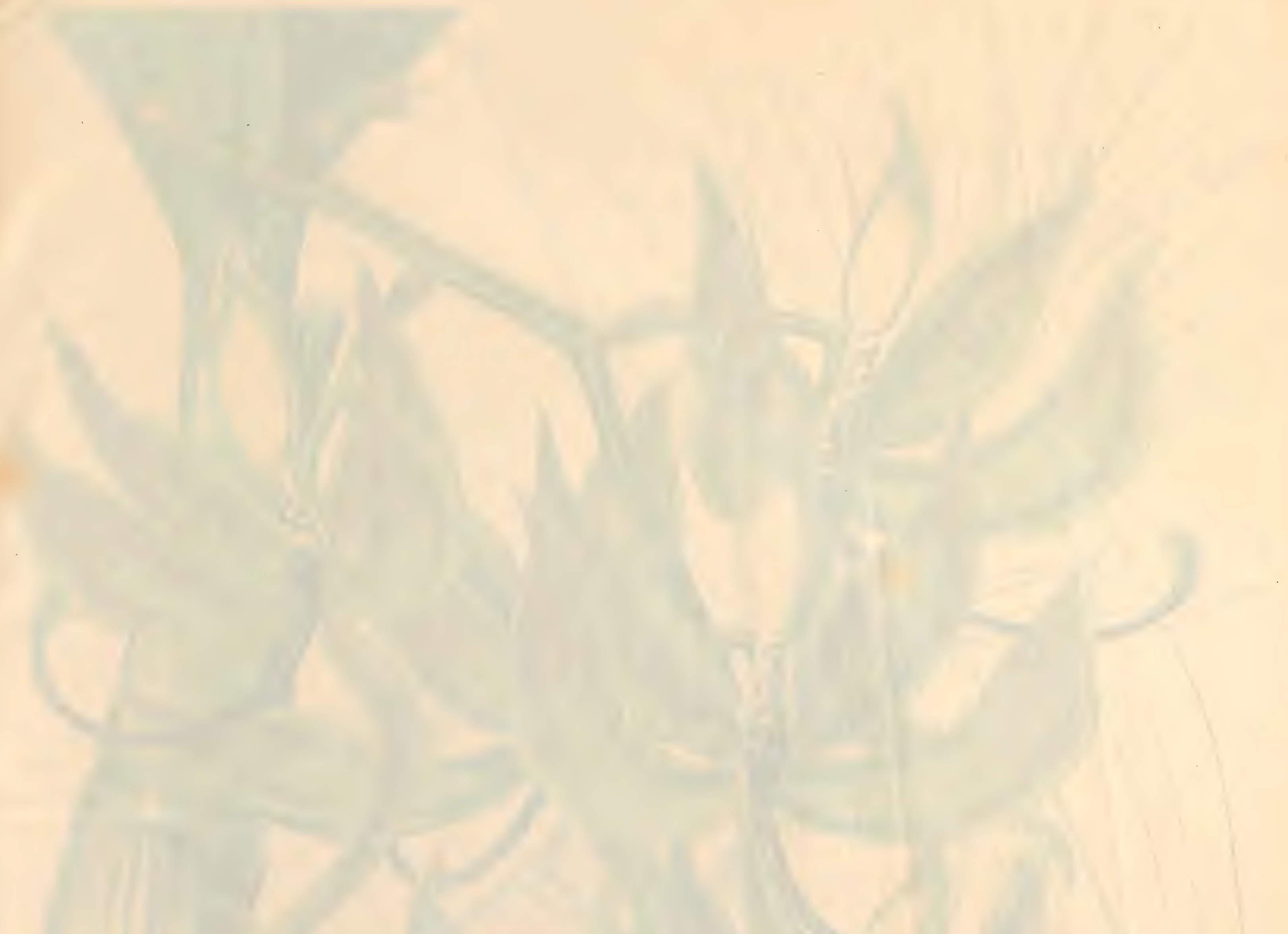
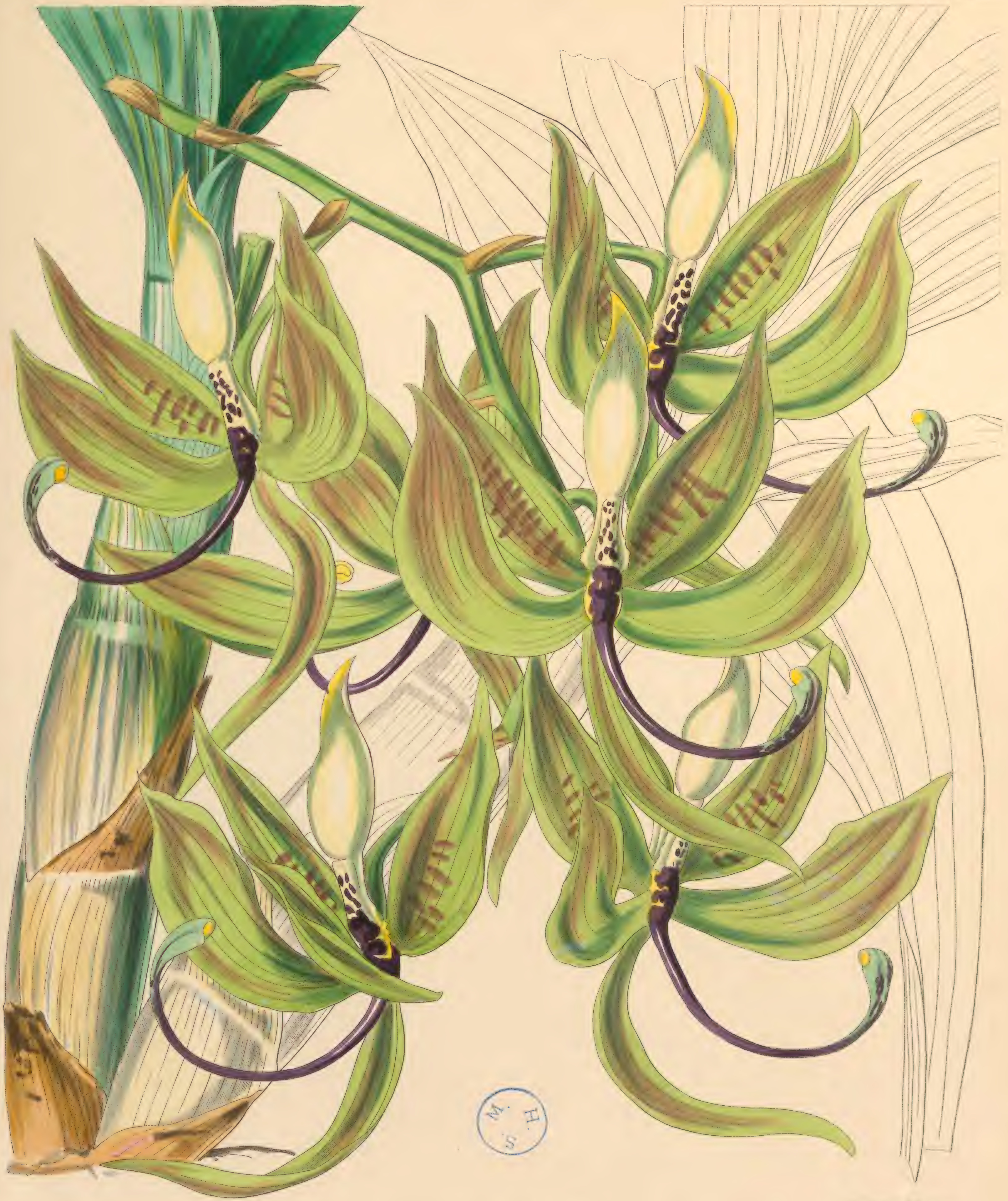


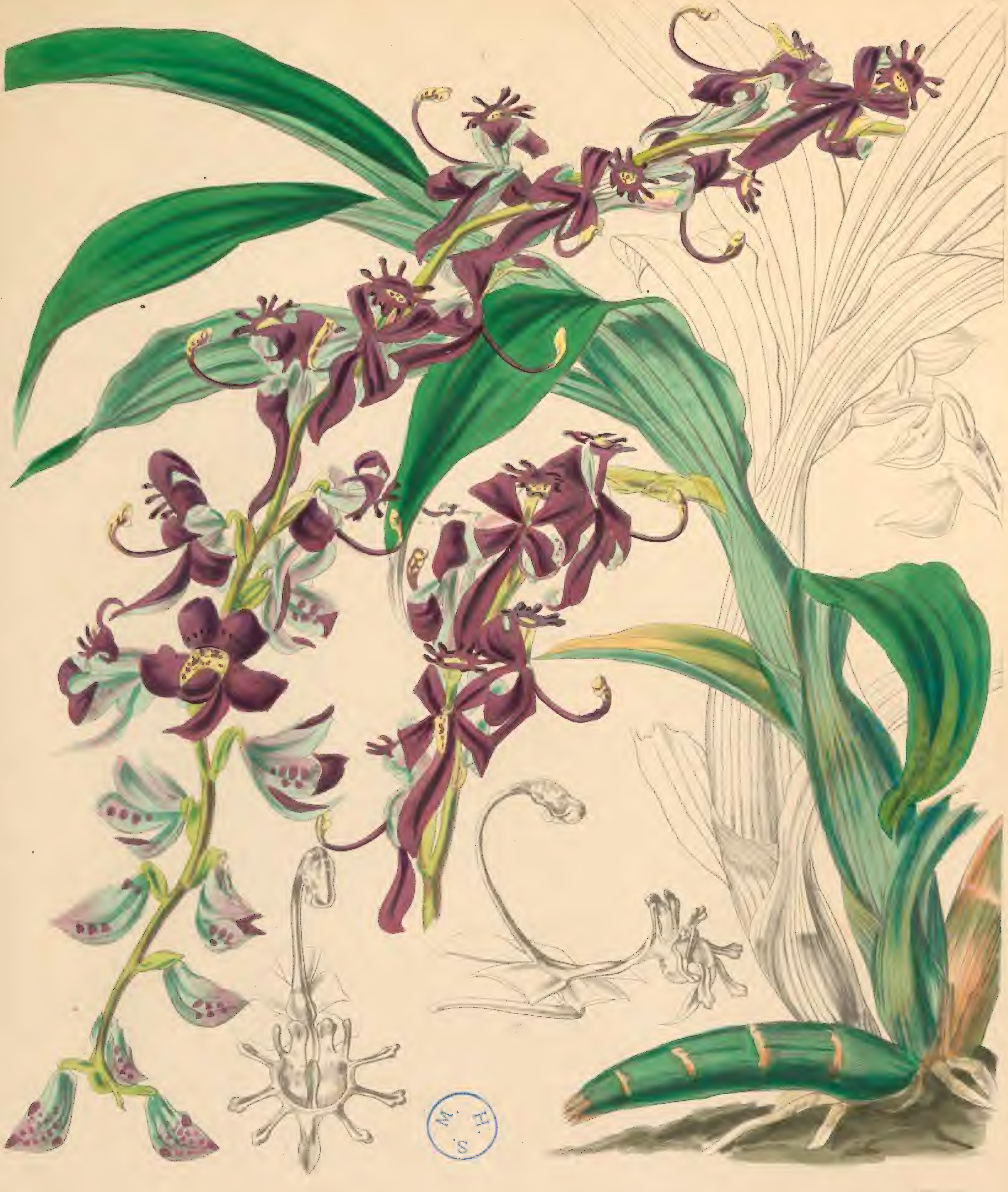
Plate XLVIII.



M. H. S.

Cycnoches Loddigesii.

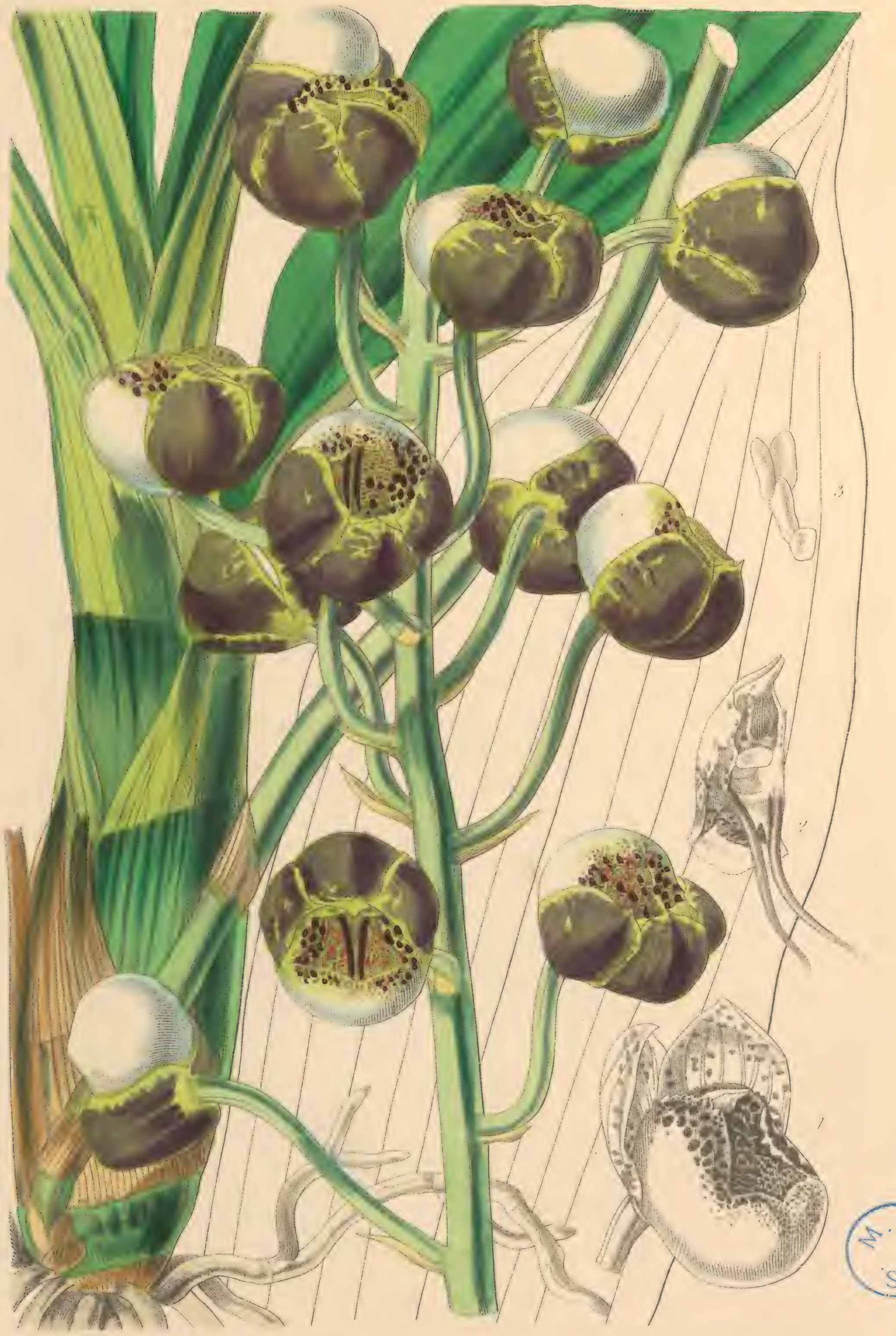
Reeve, Benham & Reeve imp.



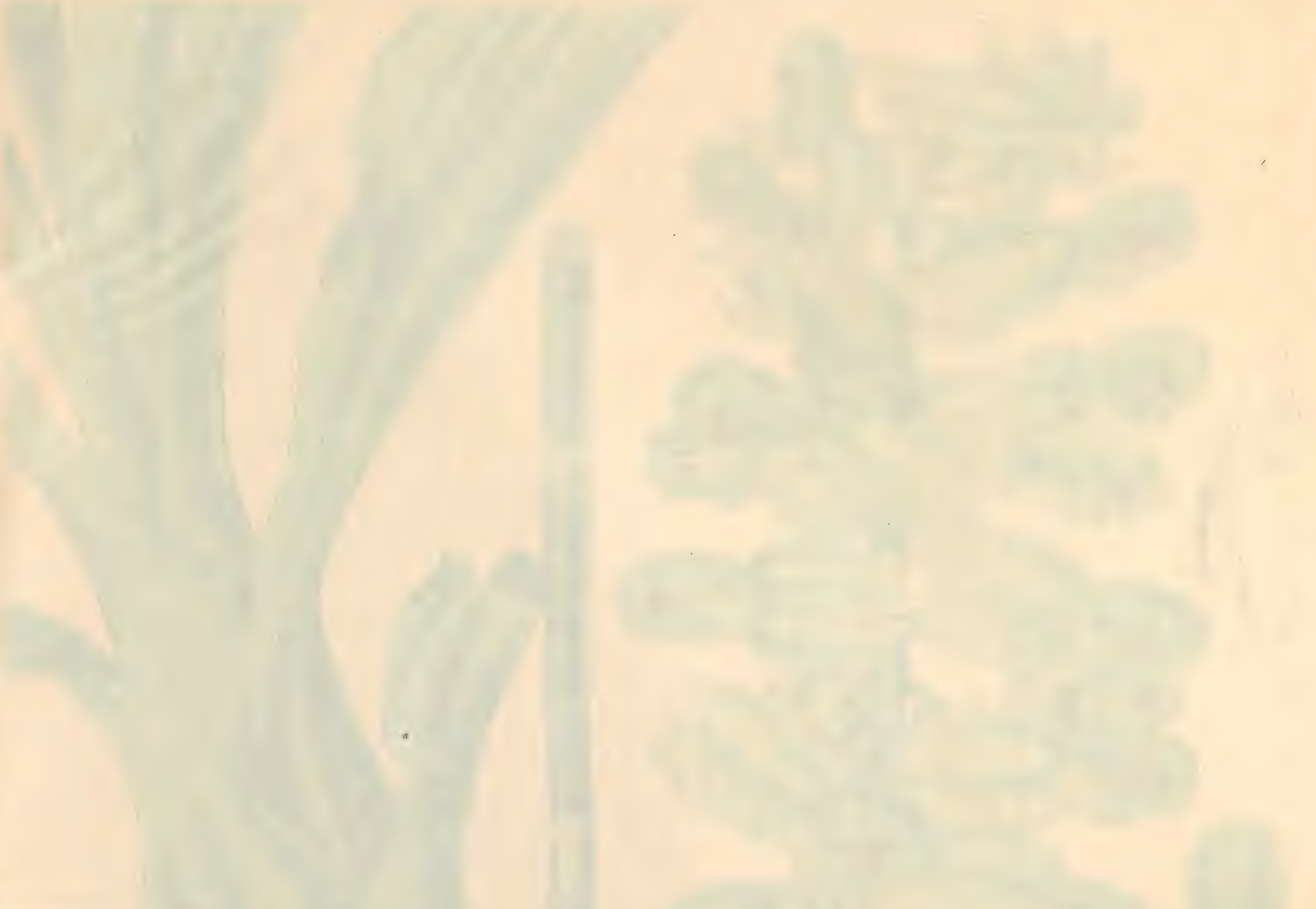
M. H. S.

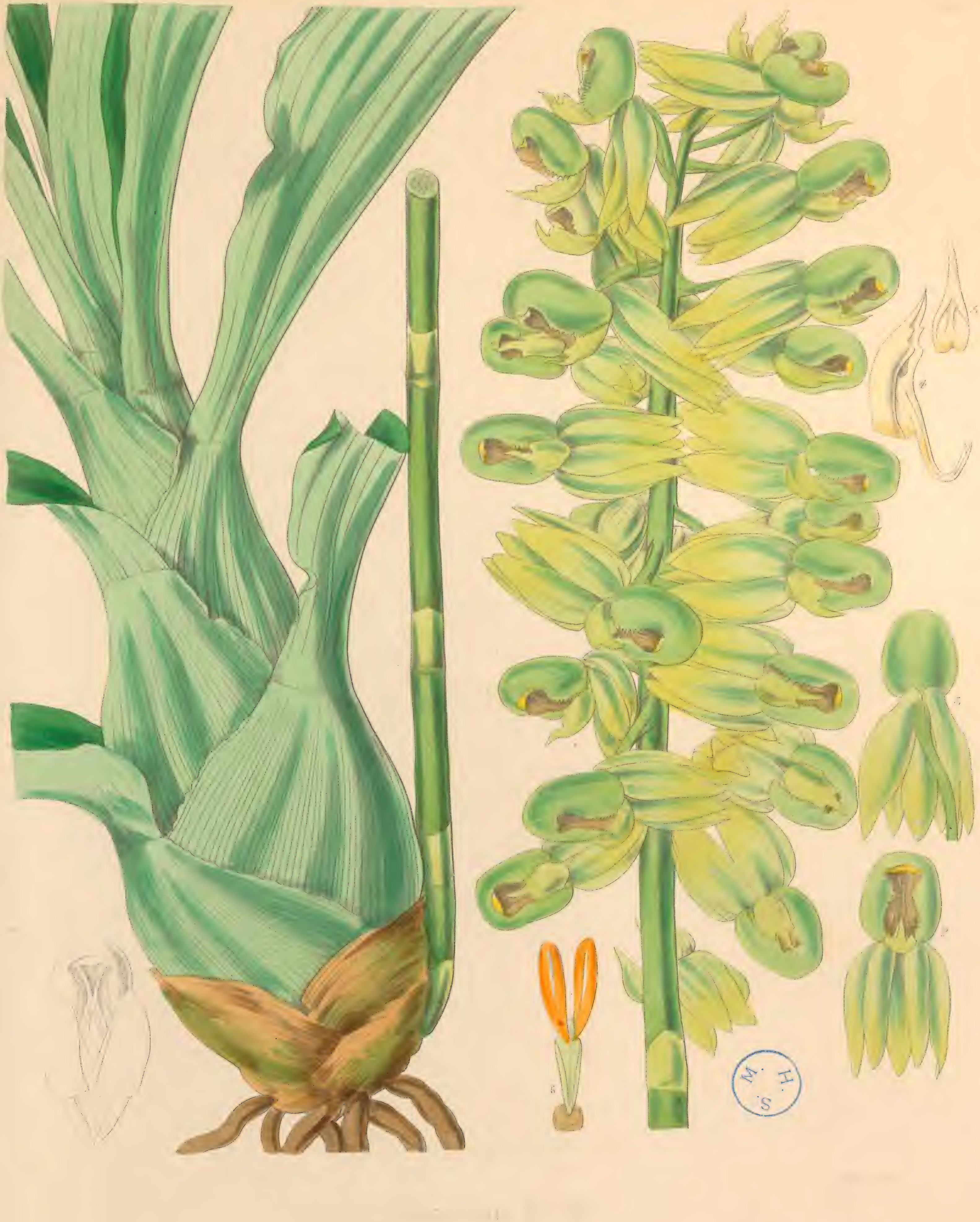
[illegible]

50 1

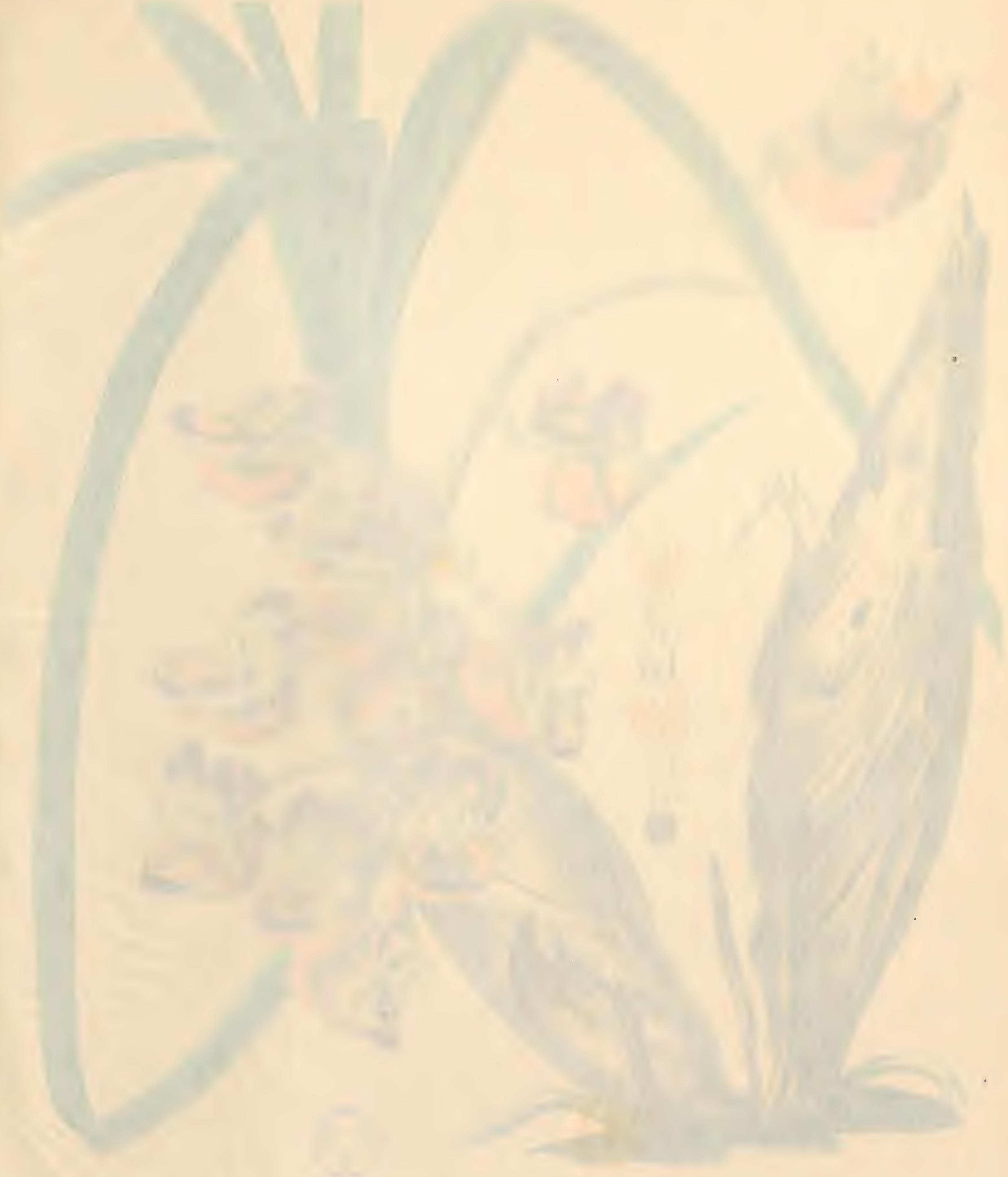


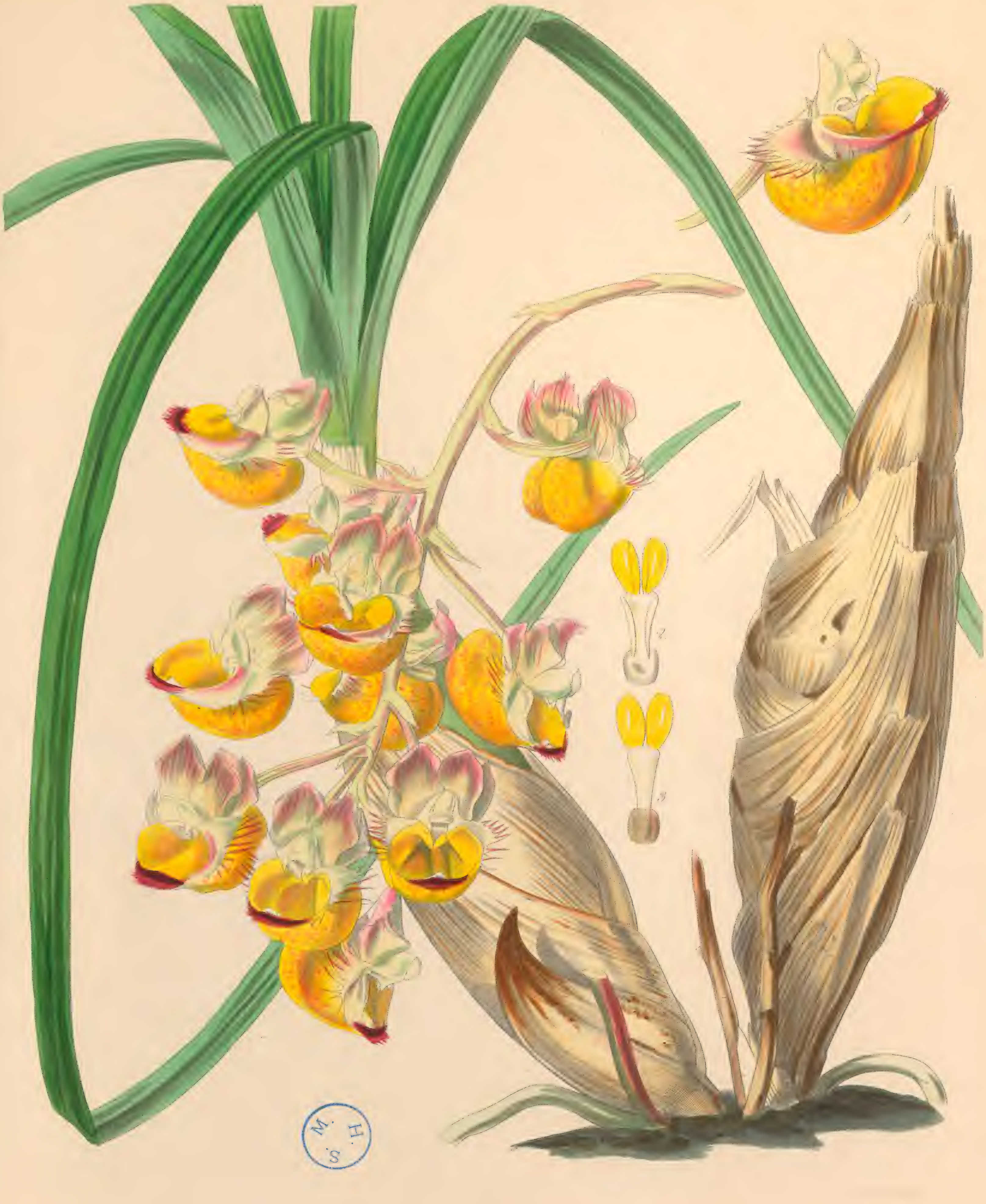
M. H. S.





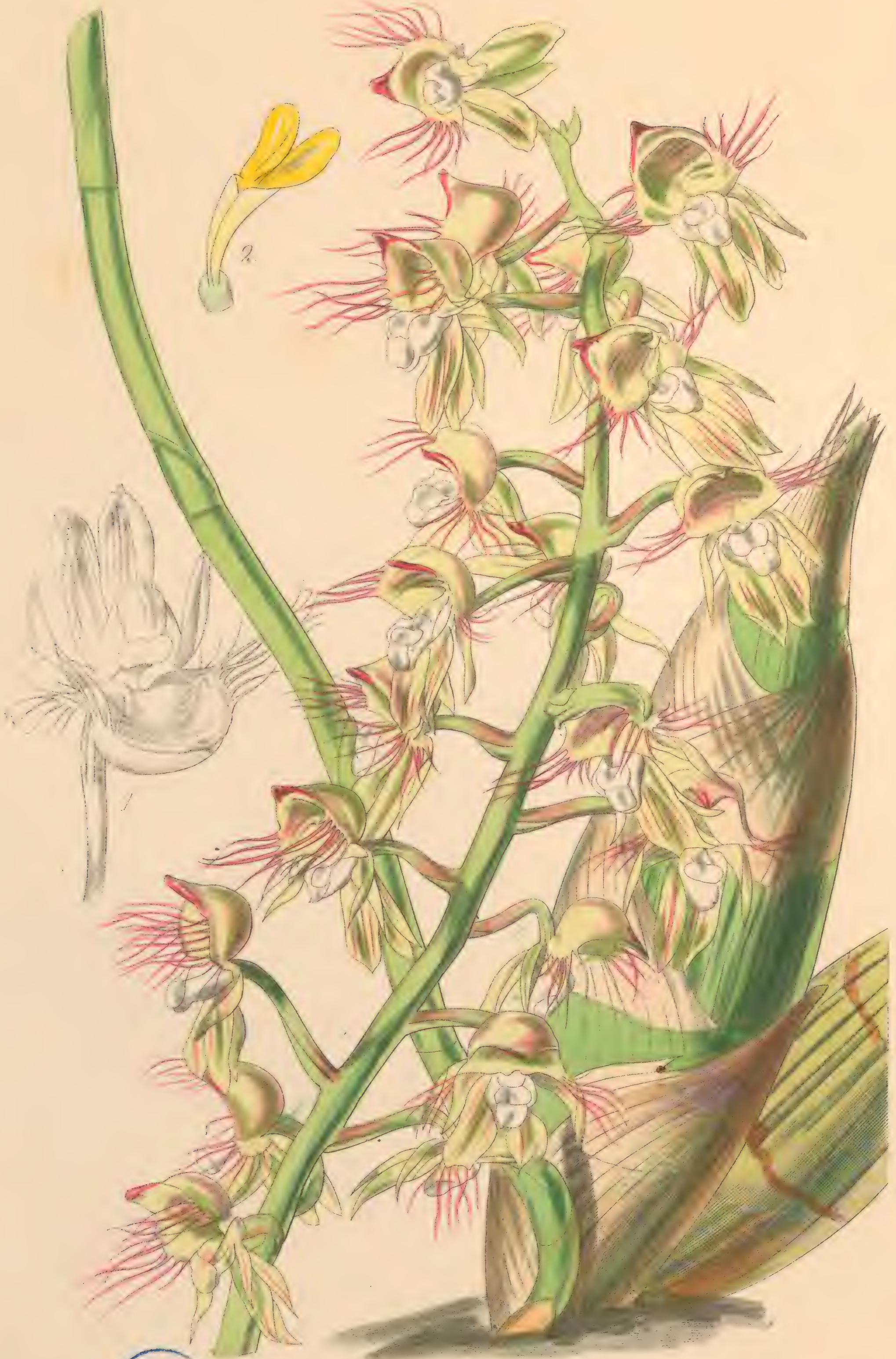
M. H. S.





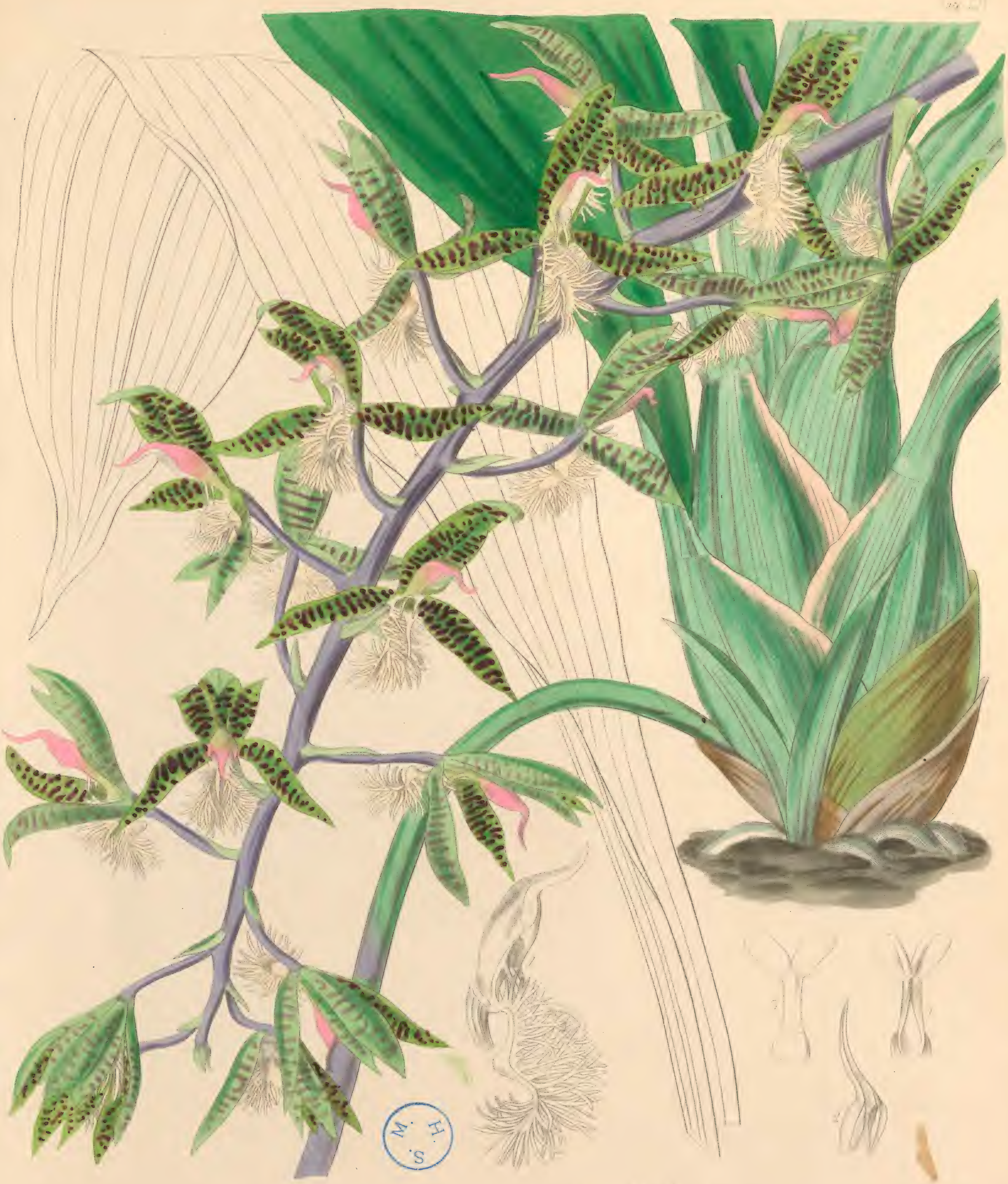
M. H. S.

53 1



M. H. S.

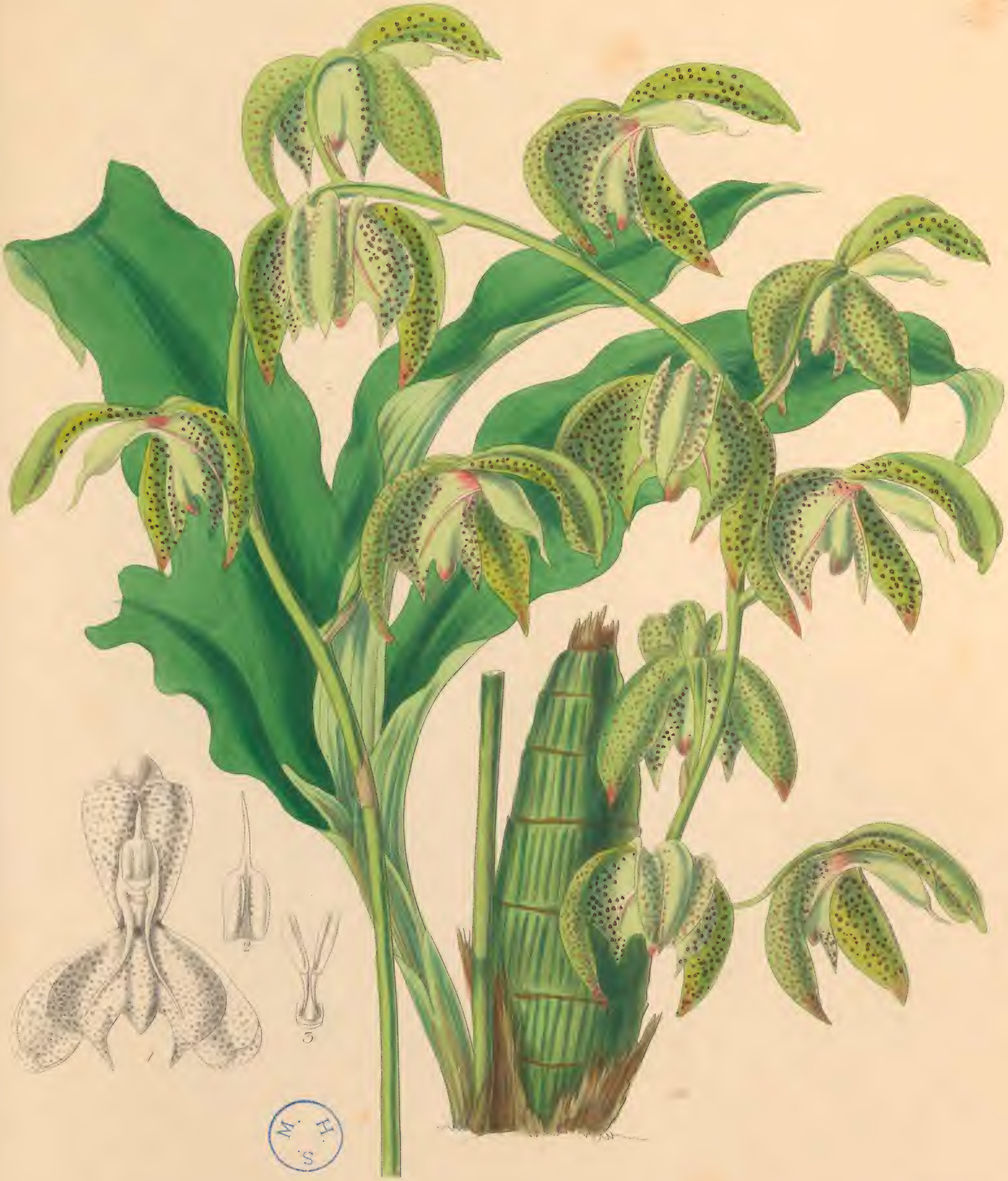
Tab. 21 V



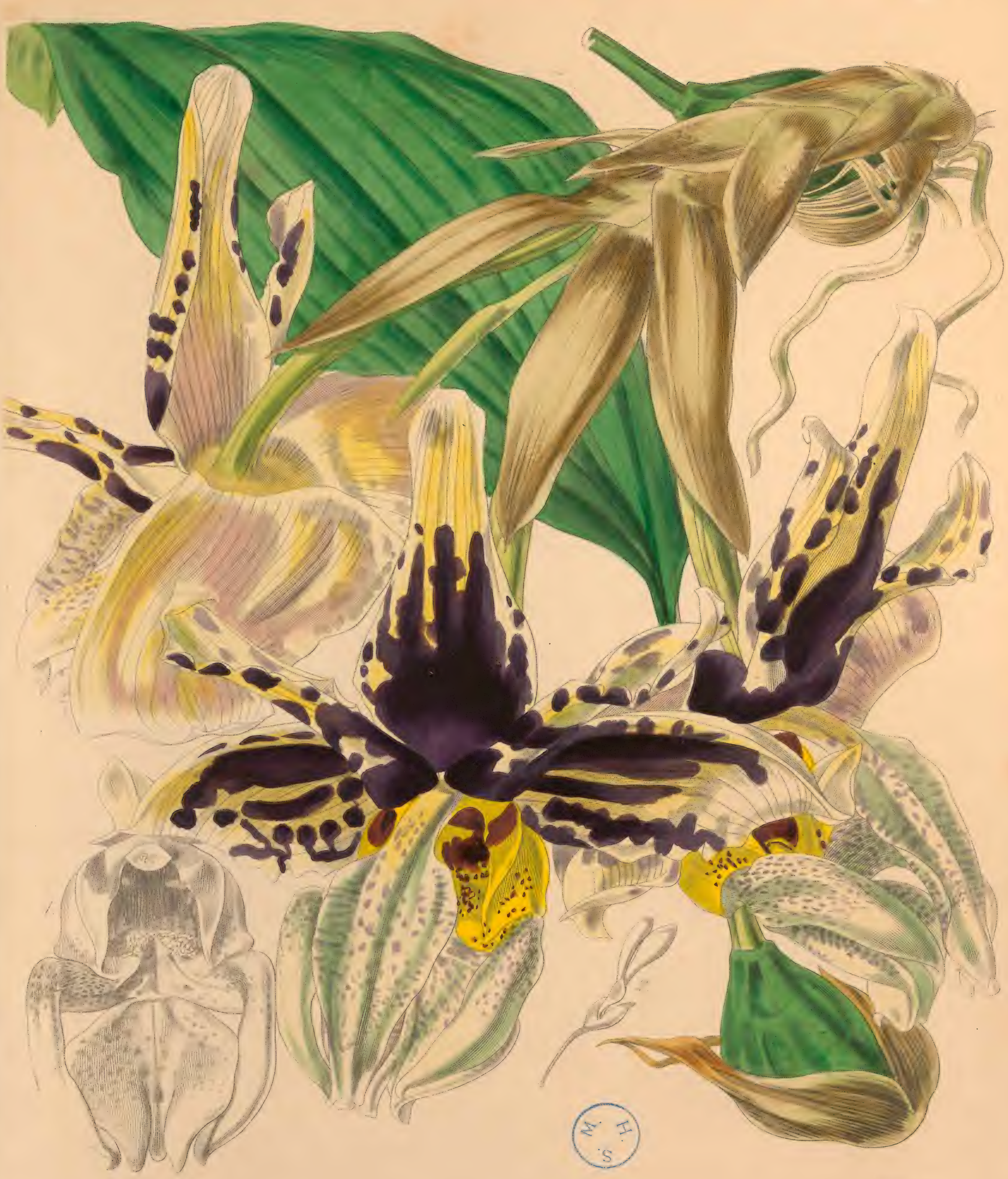
M. H. S.

B. spinigerum

55



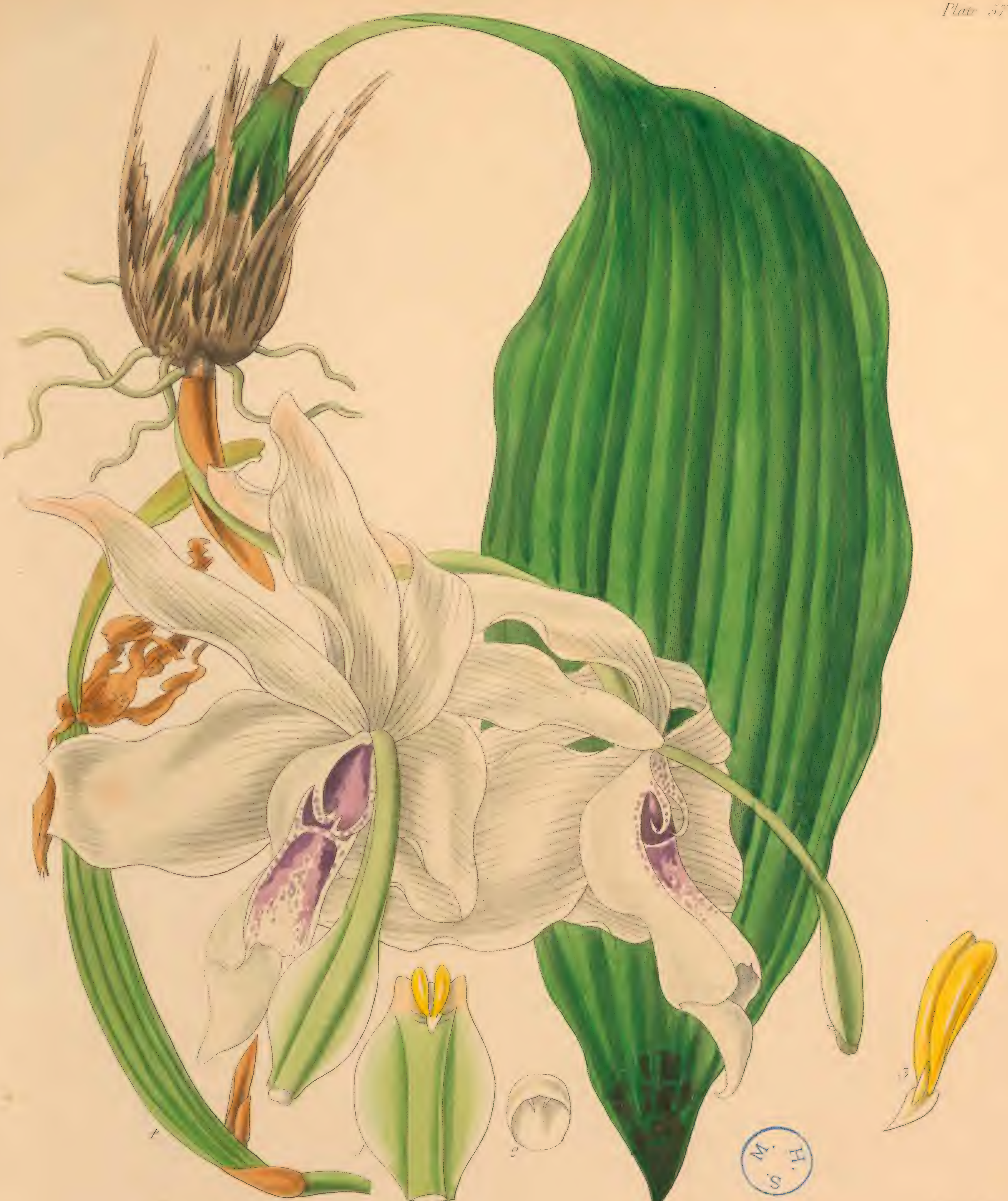
M. H. S.



M. H. S.

[illegible]

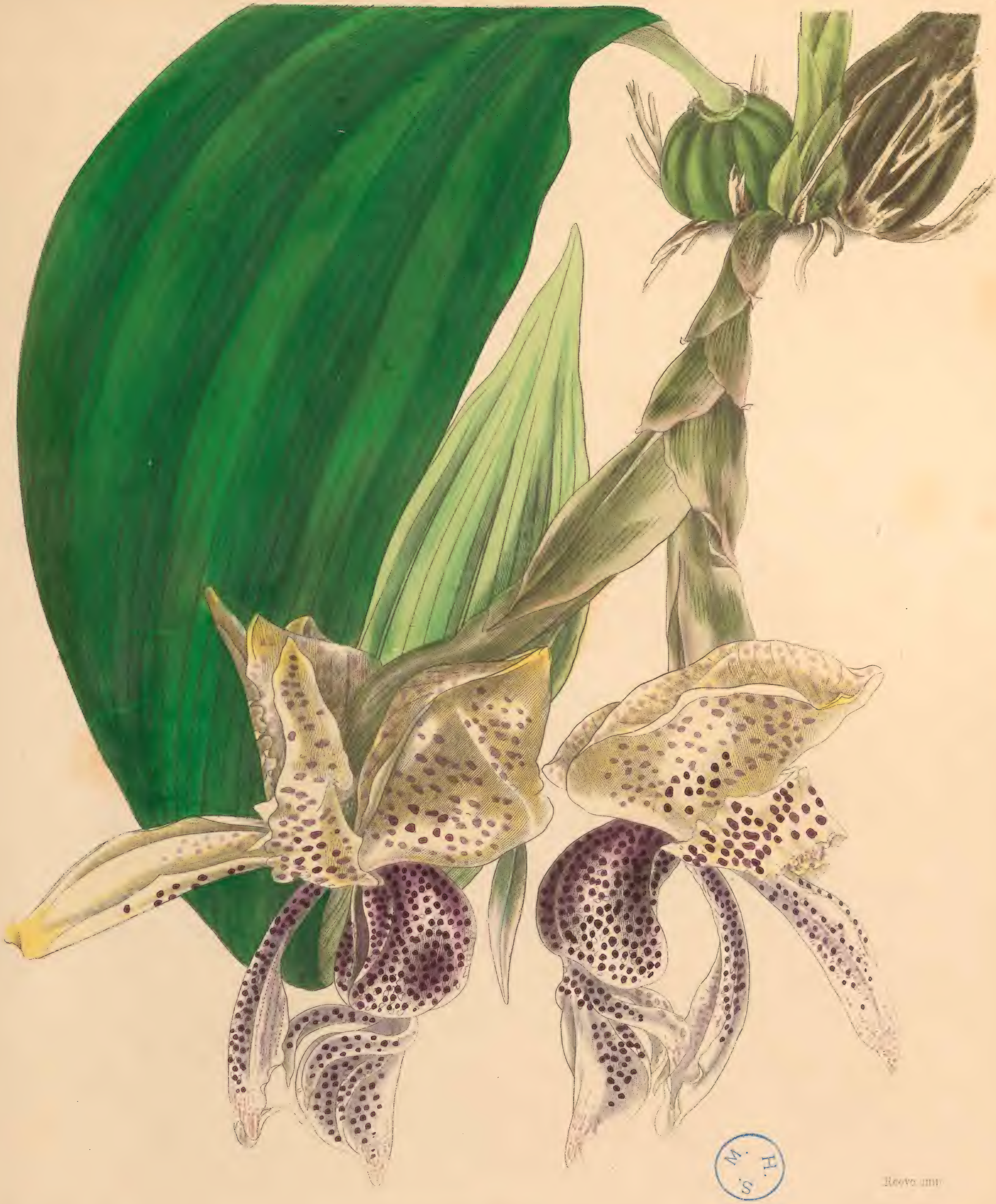
[illegible]



M. H. S.

Reeve imp.

Stanhopea eburnea



M. H. S.

Reeve imp.

Stanhopea insignis.

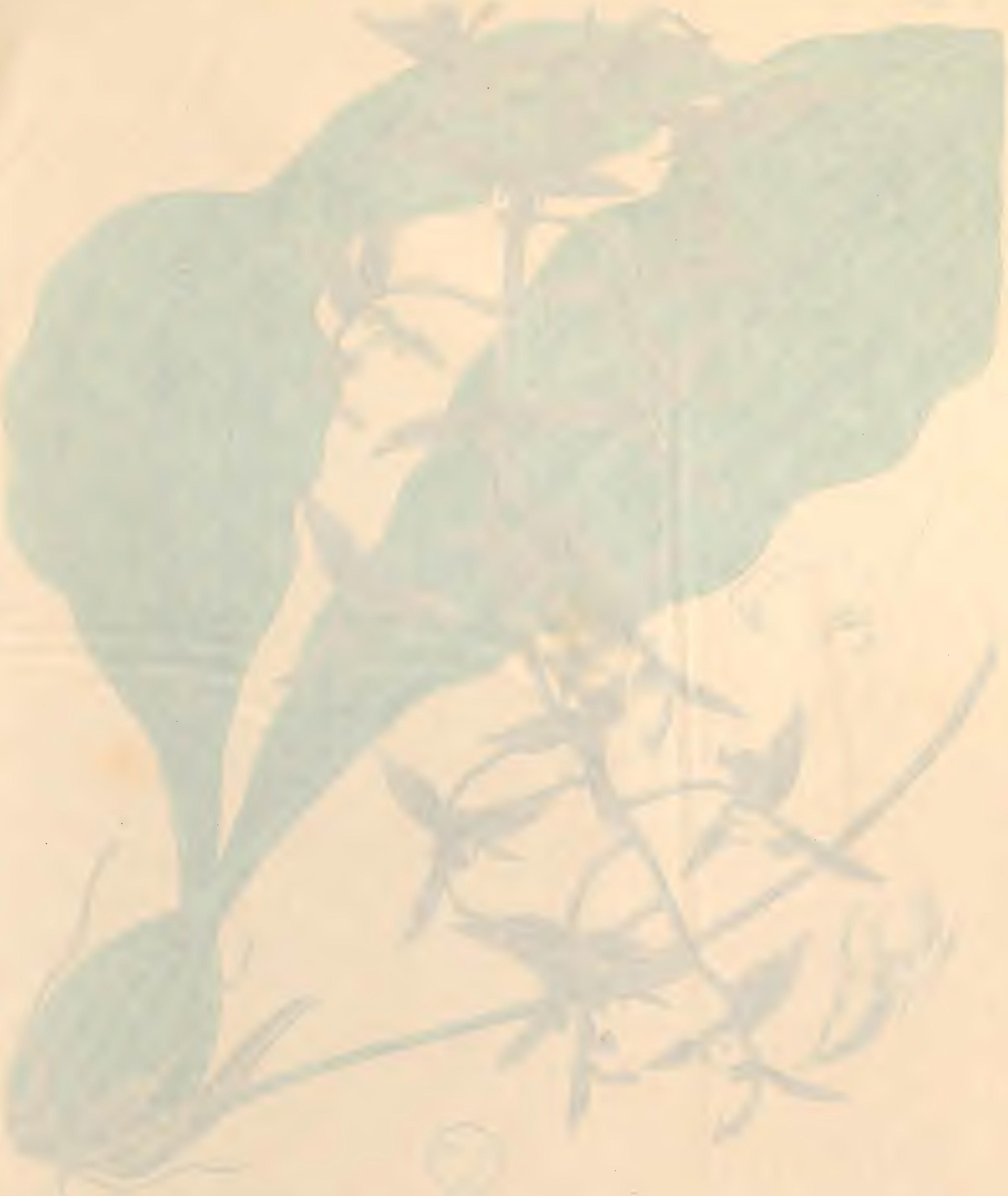
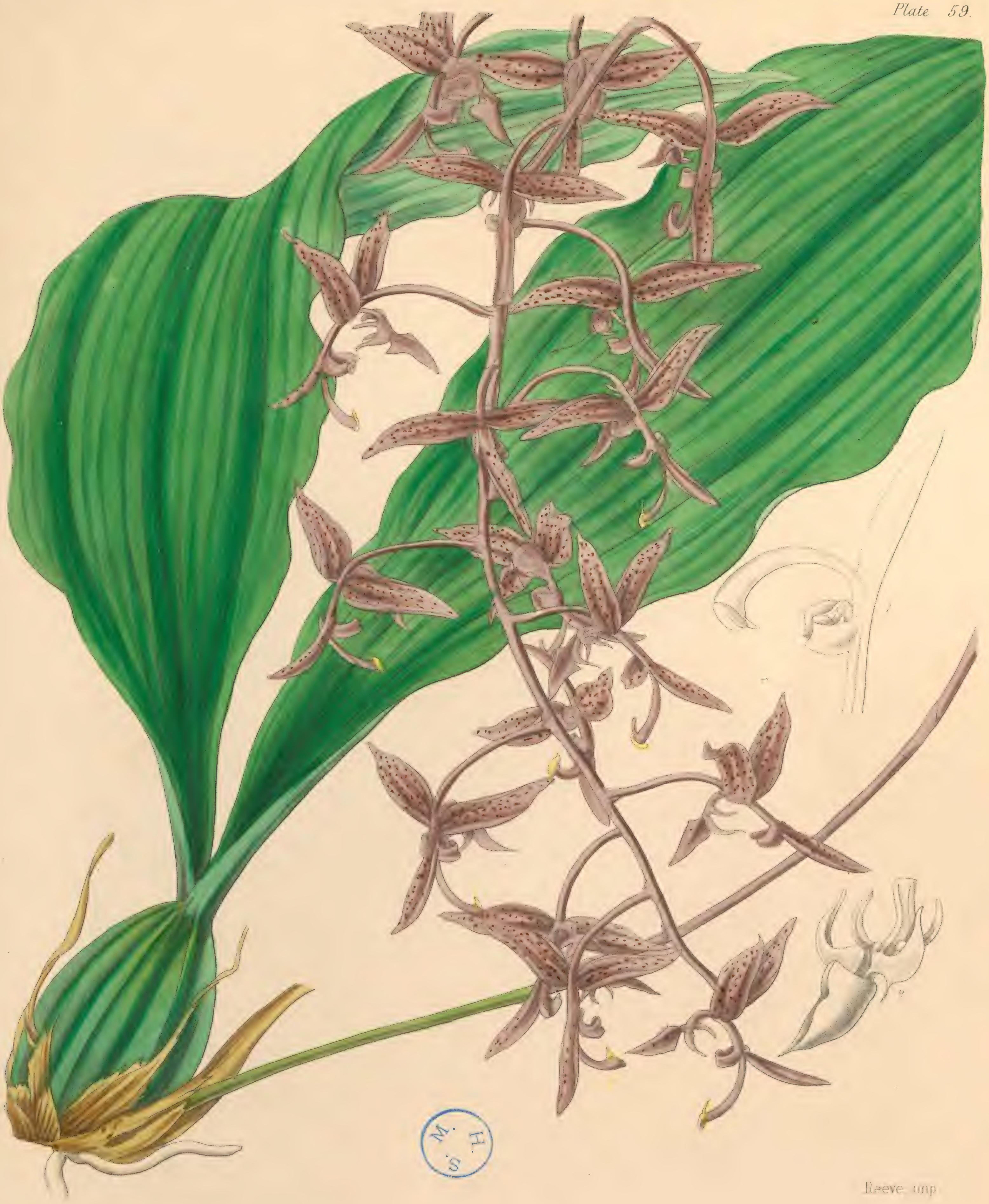


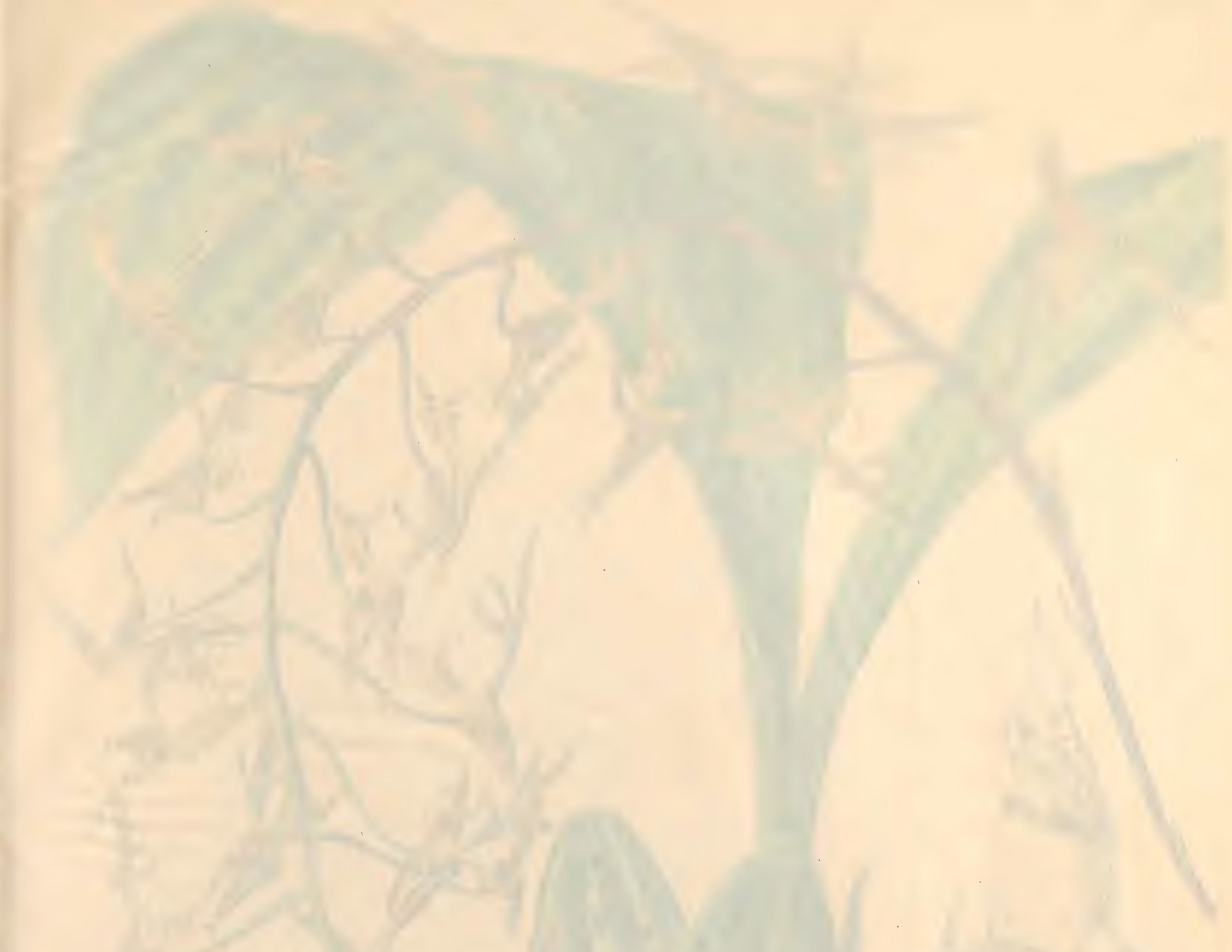
Plate 59.

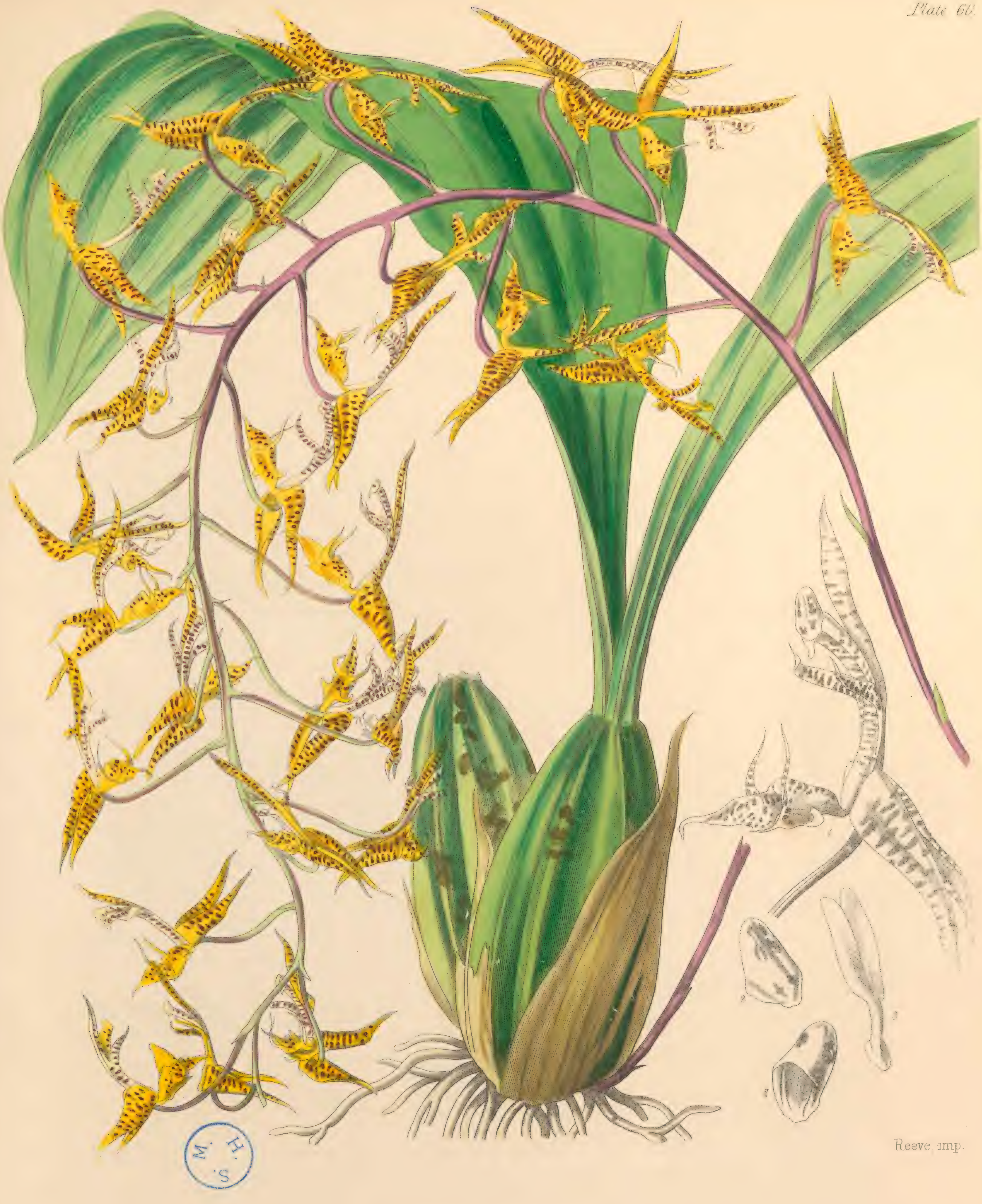


M. H. S.

Reeve imp.

Gongora atropurpurea

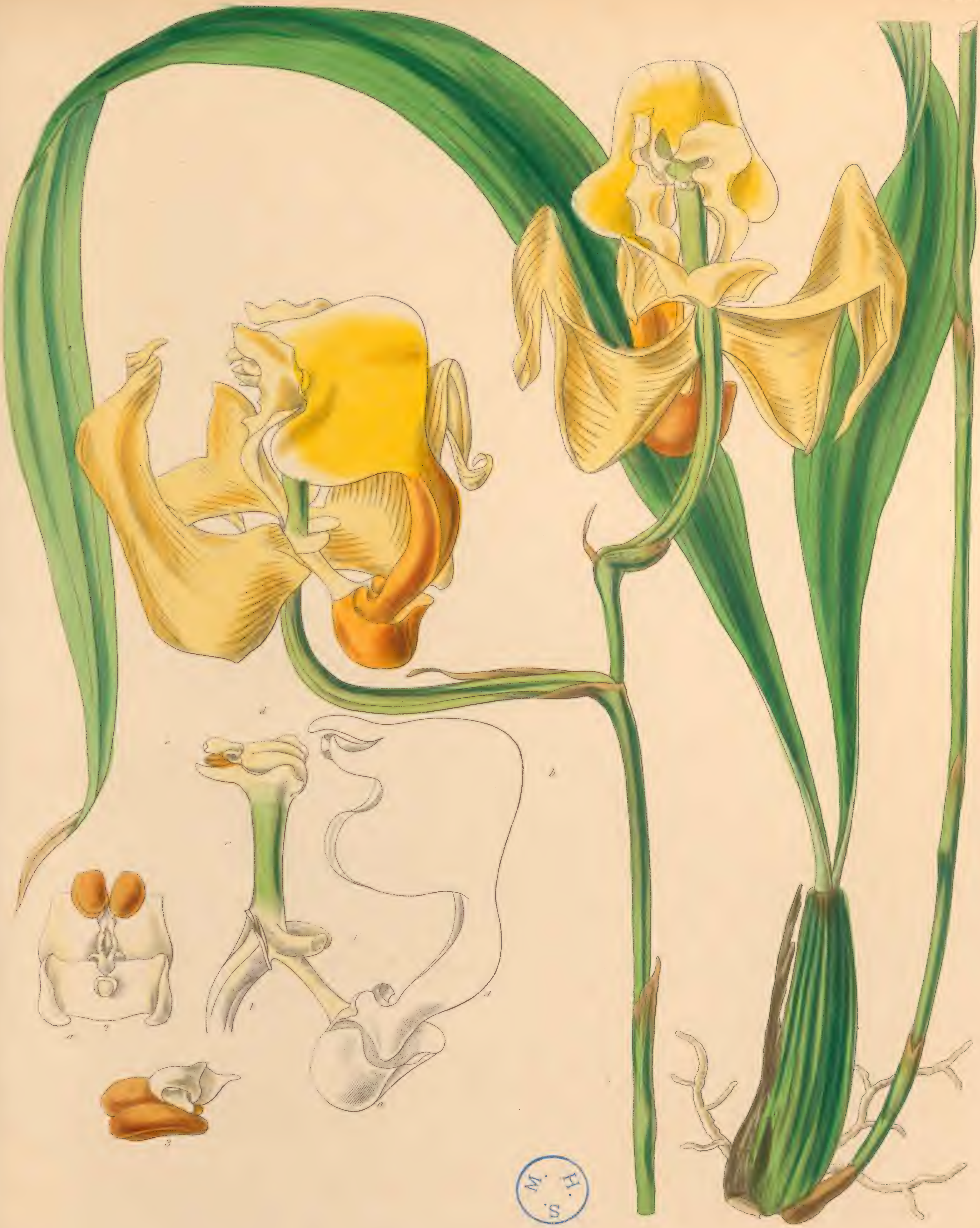




Reeve, imp.

M. H. S.

Gongora maculata.

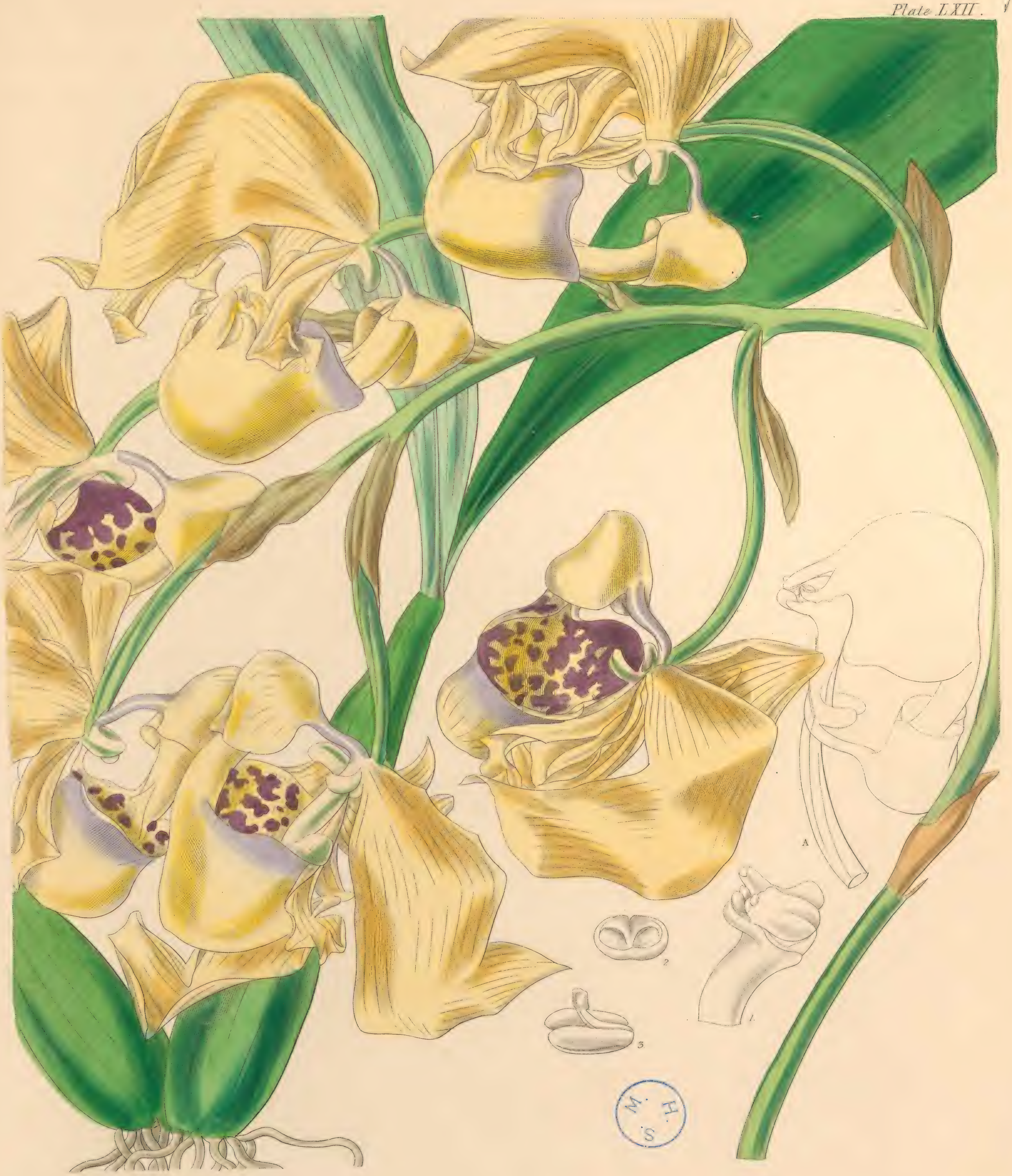

d
c
b
c
1
f
a
a
2
a
3

M. H. S.

Reeve imp.

Coryanthes speciosa.

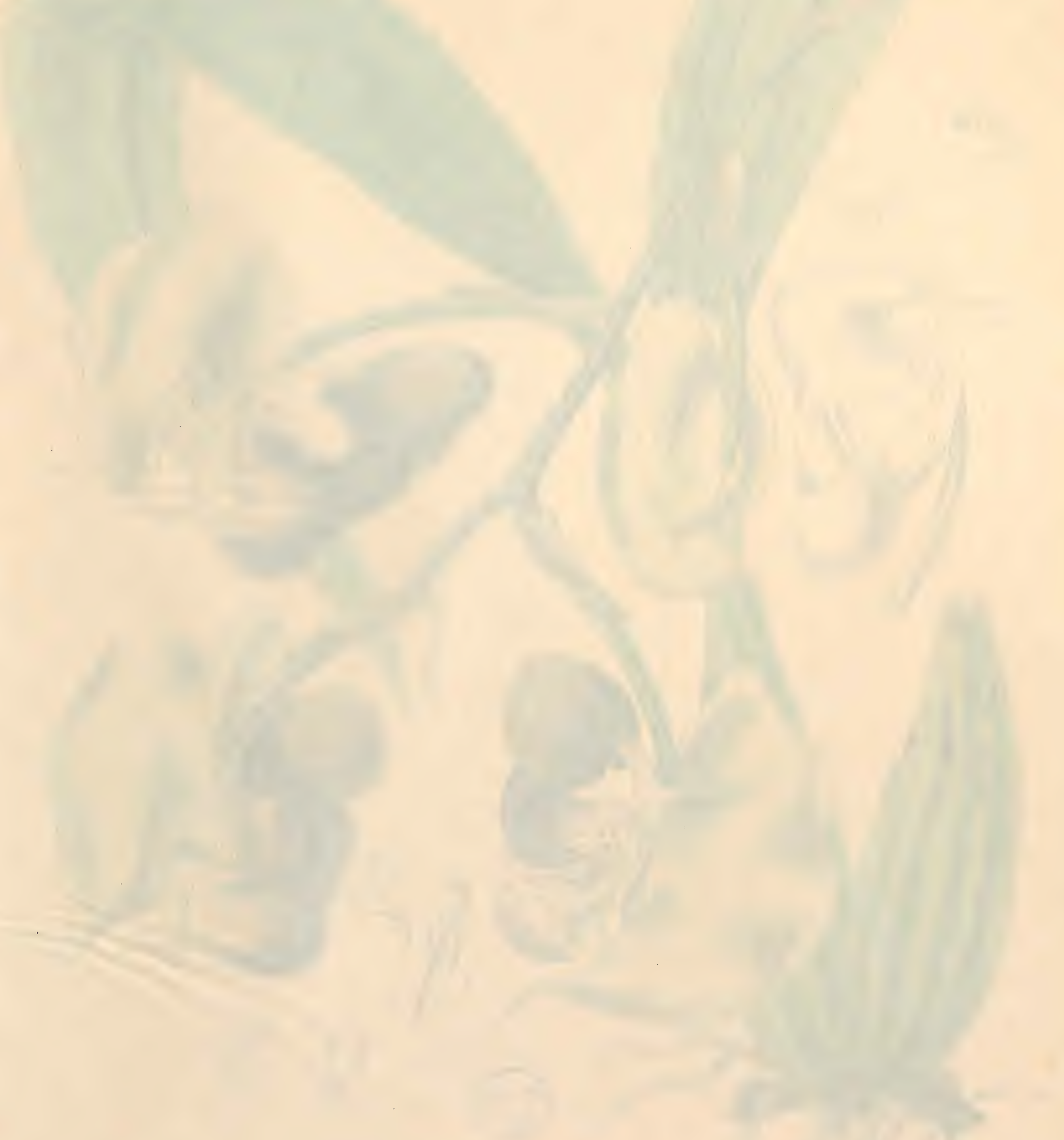
Plate LXII.



M. H. S.

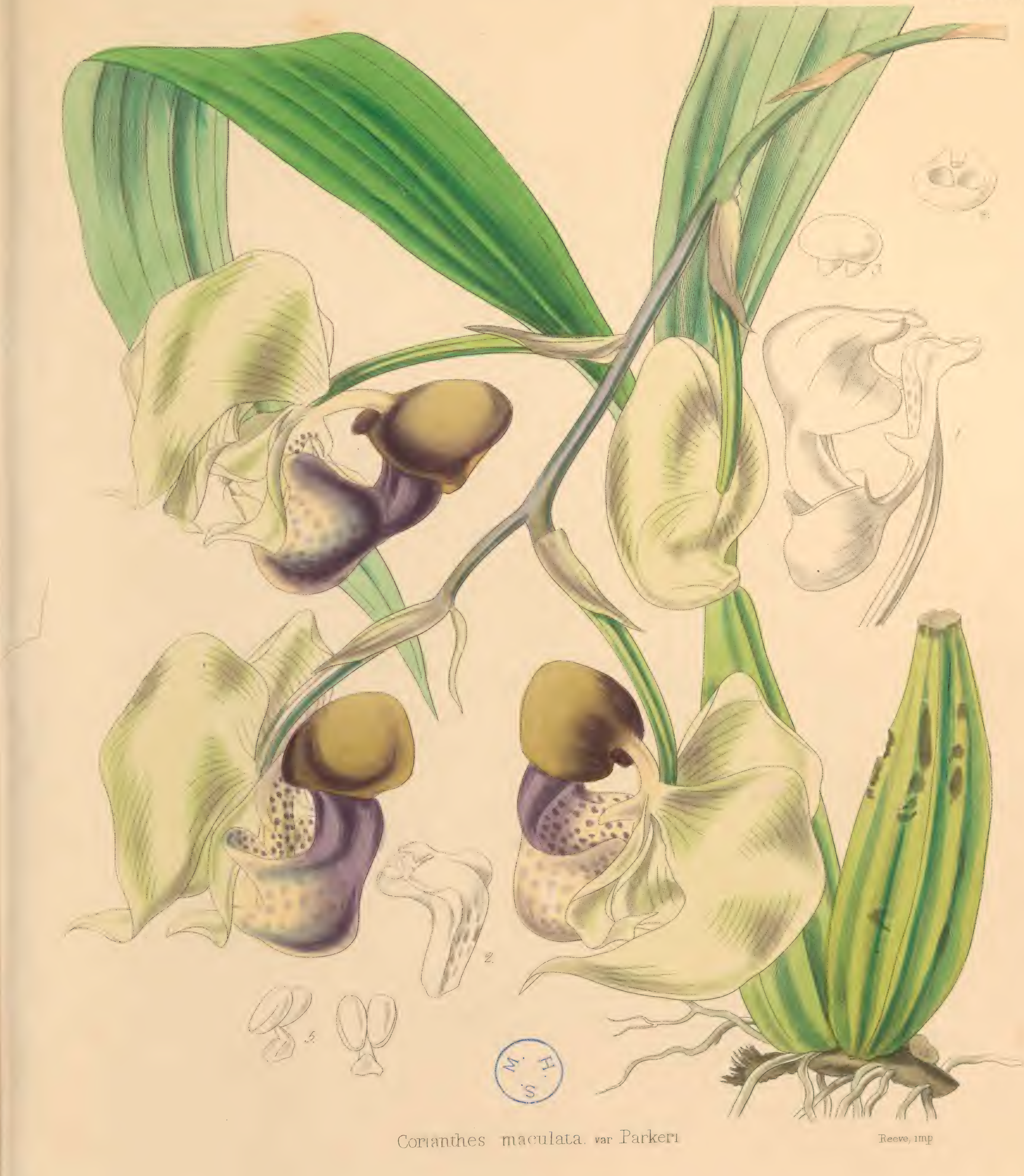
Coryanthes maculata.

Reeve Benham & Reeve, imp.



[illegible]

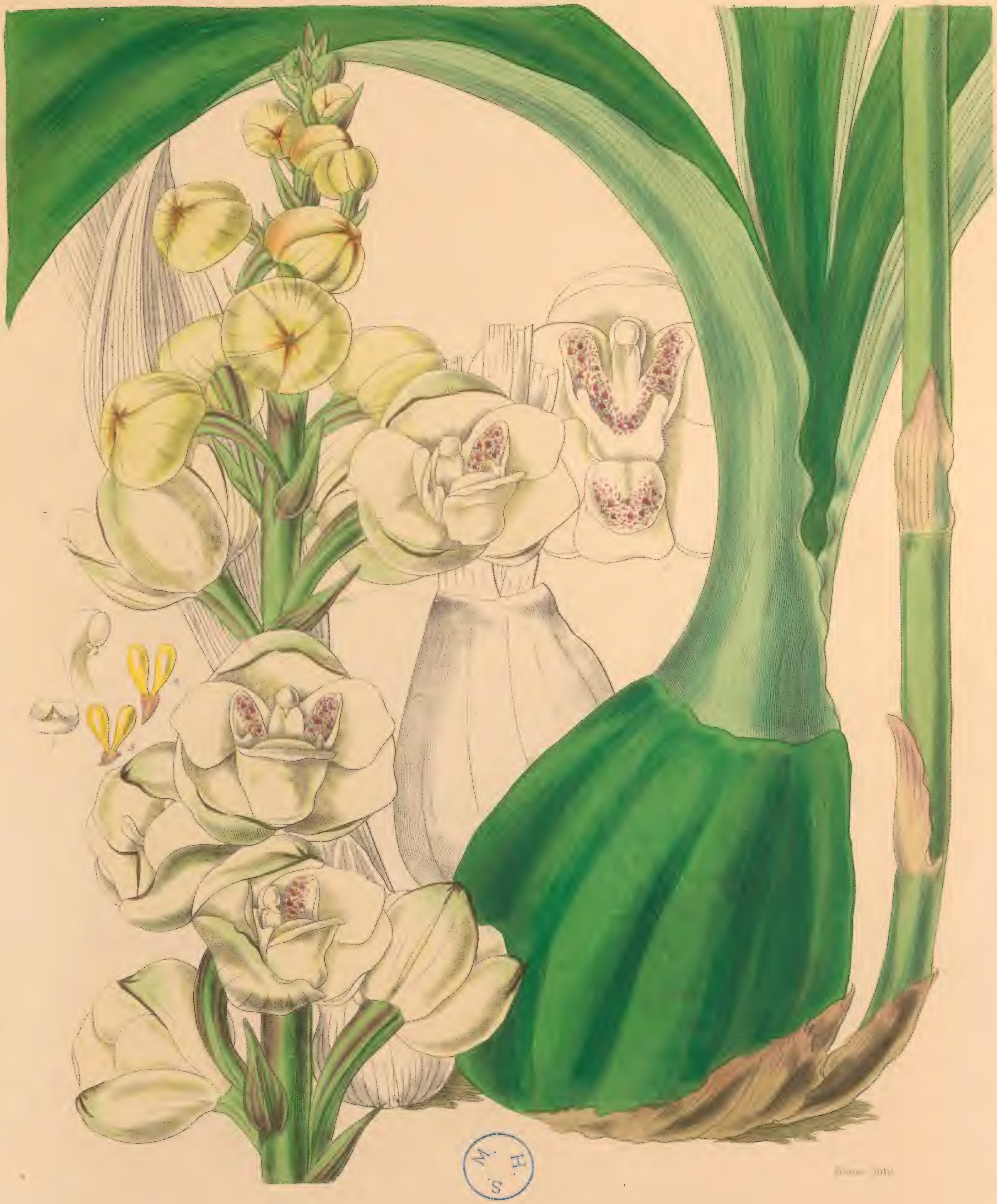
Plate 63.



M. H. S.

Corianthes maculata. var Parkeri

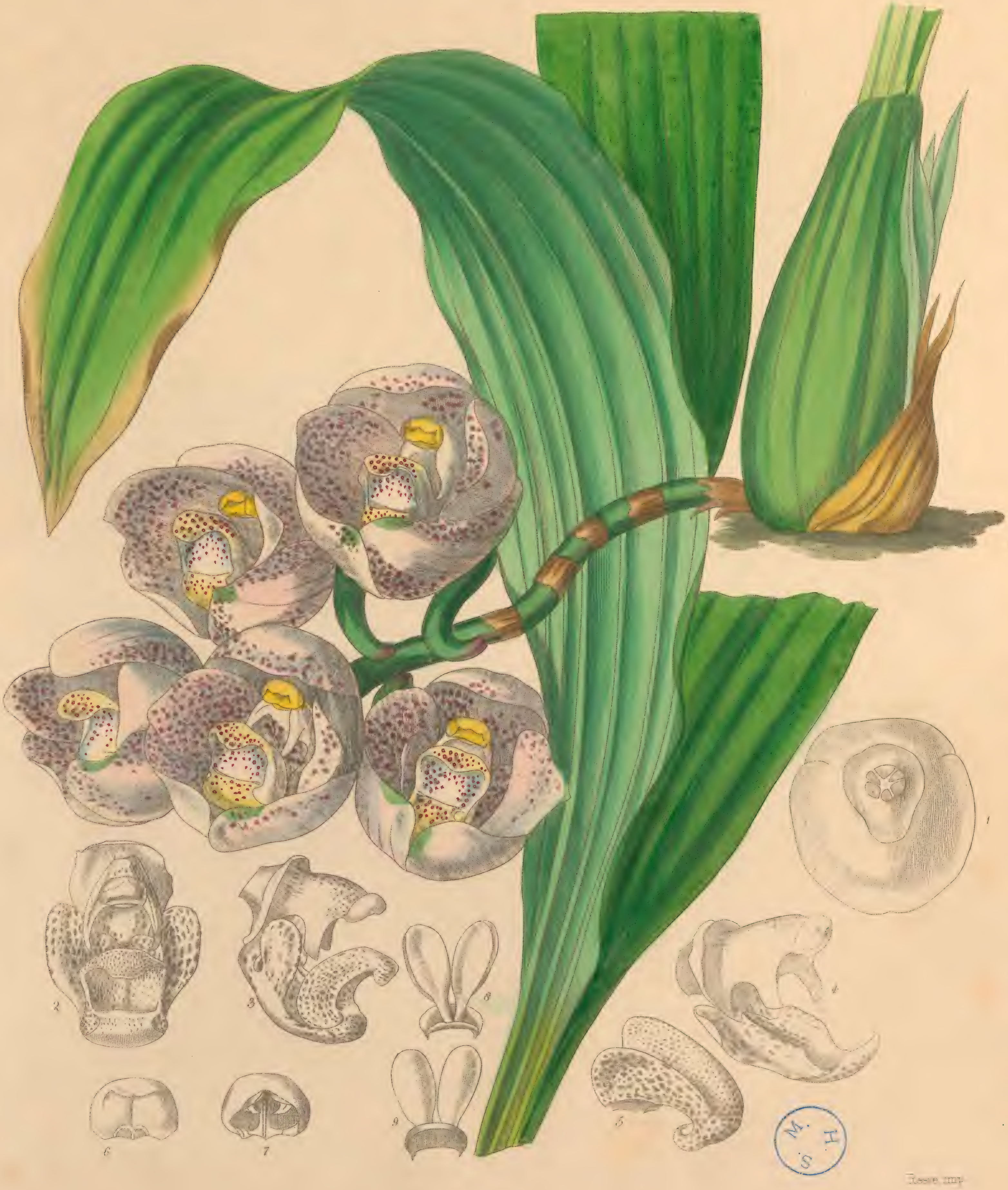
Reeve, imp



M. H. S.

Peristeria elata.

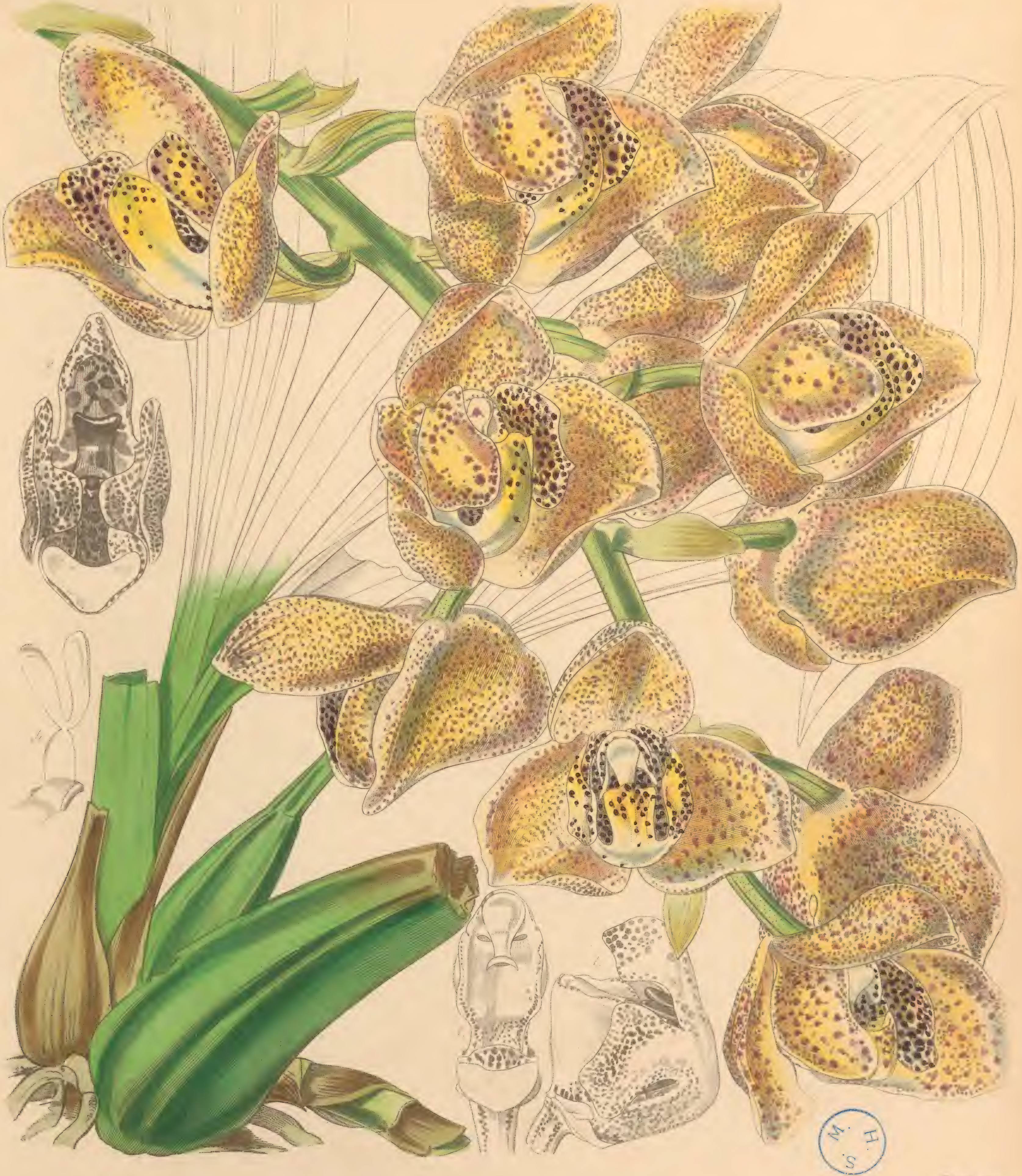
Plate LXV.



M. H. S.

Reeve imp.

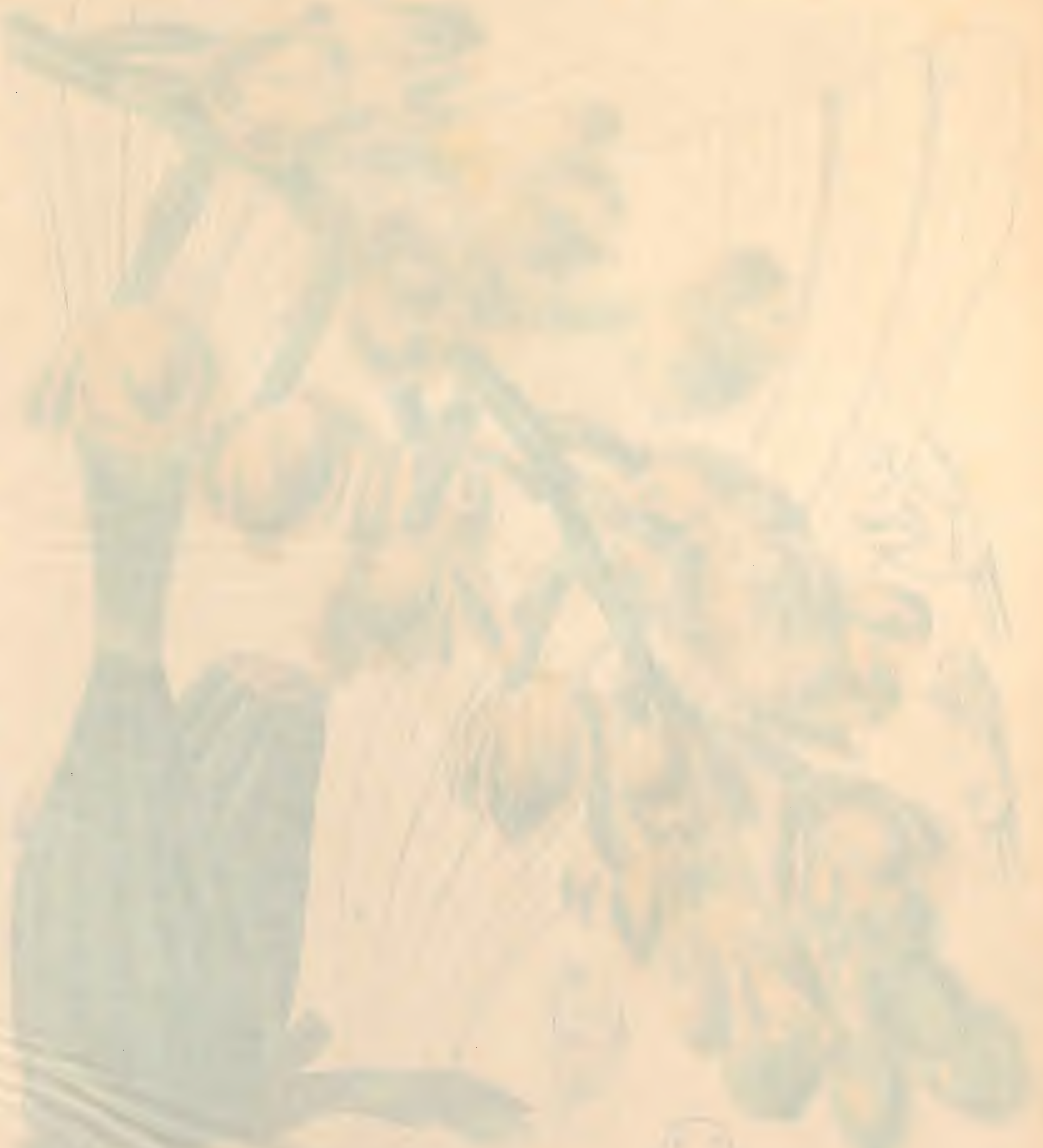
Peristeria pendula

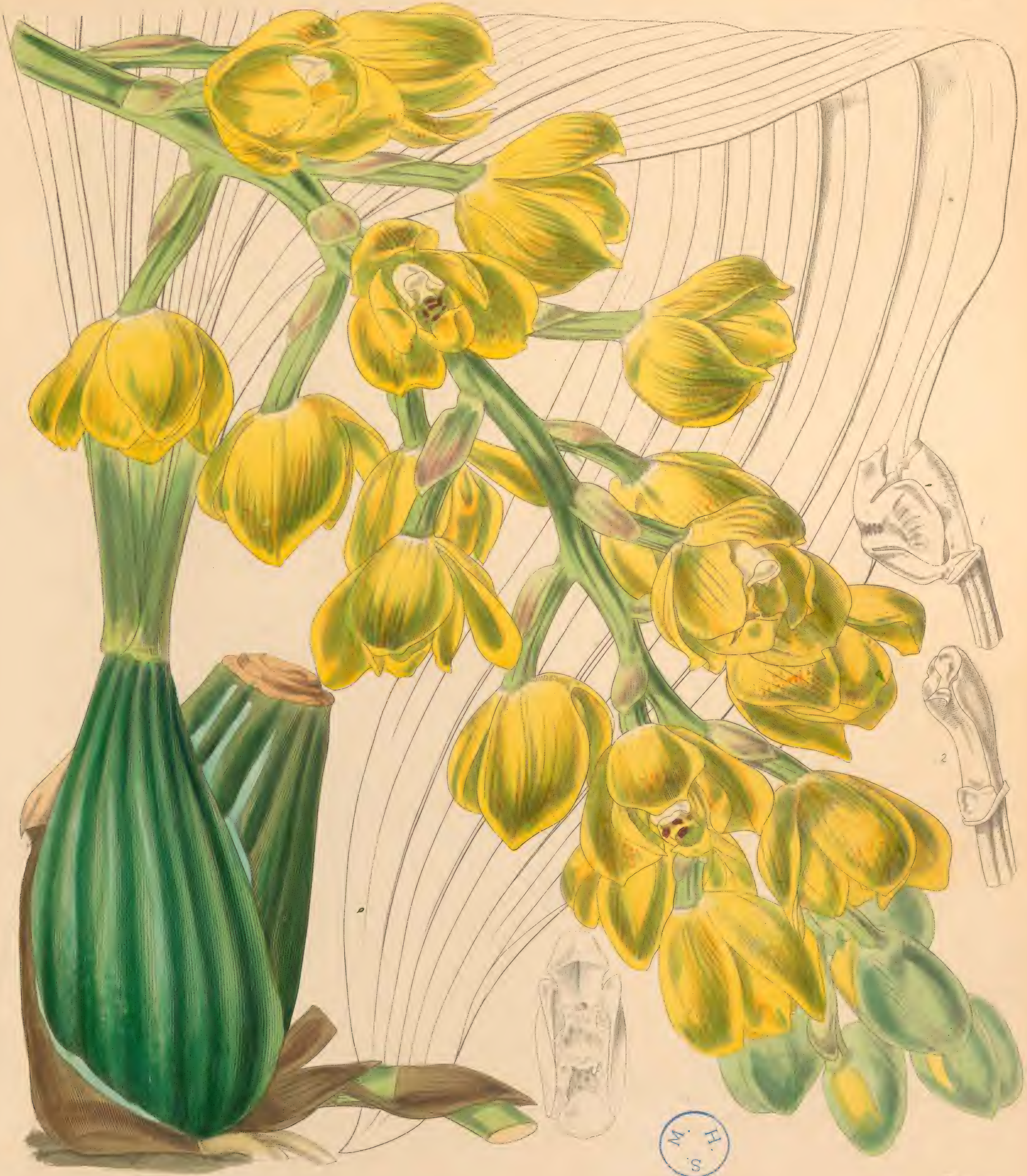


M. H. S.

Reeve, imp

Peristeria Humboldtii.



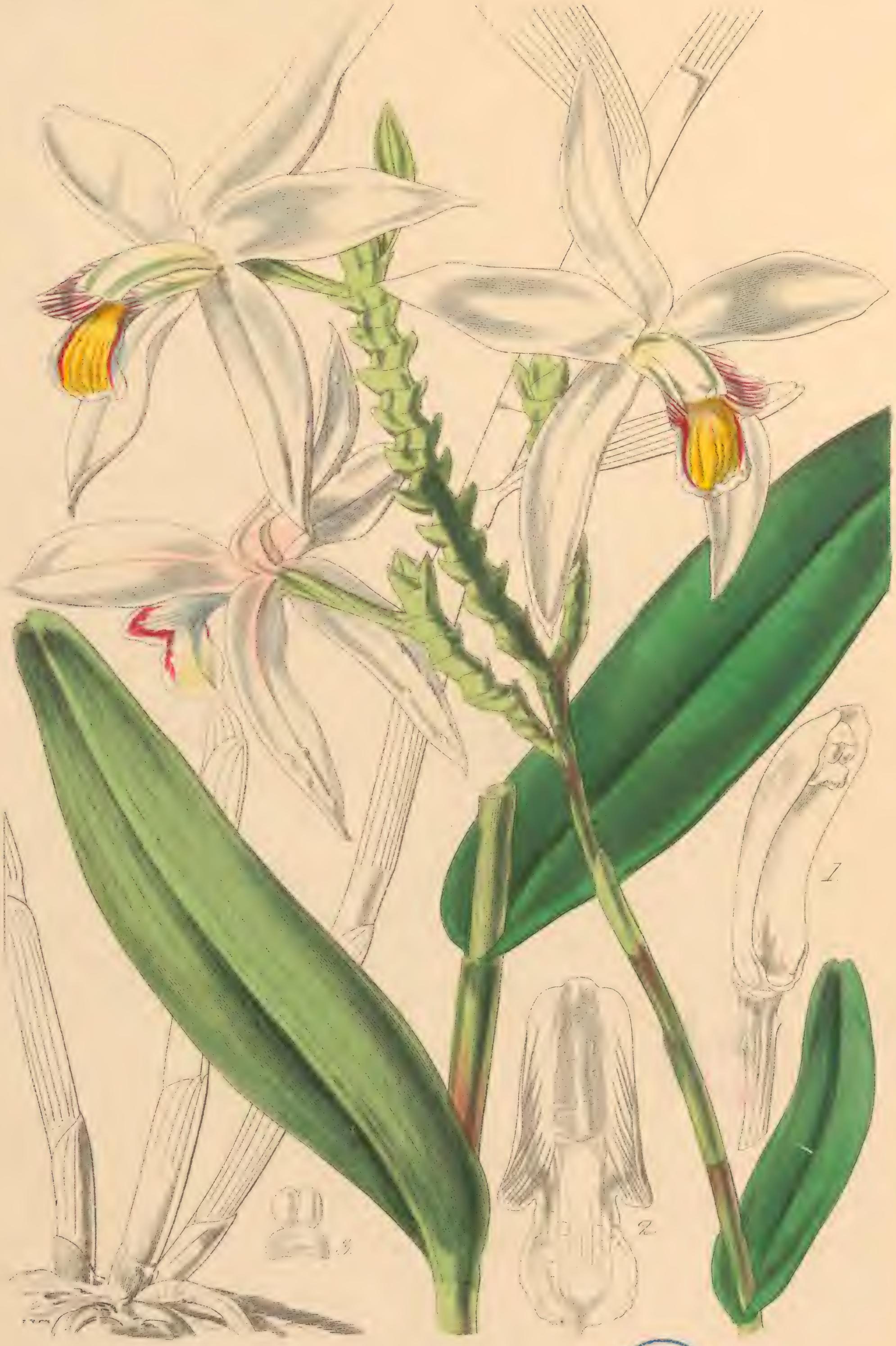


M. H. S.

Bode [illegible]

Peristeria Barkeri

Plate LXVIII.



M. H. S.

Lowe imp.

Bromheadia palustris

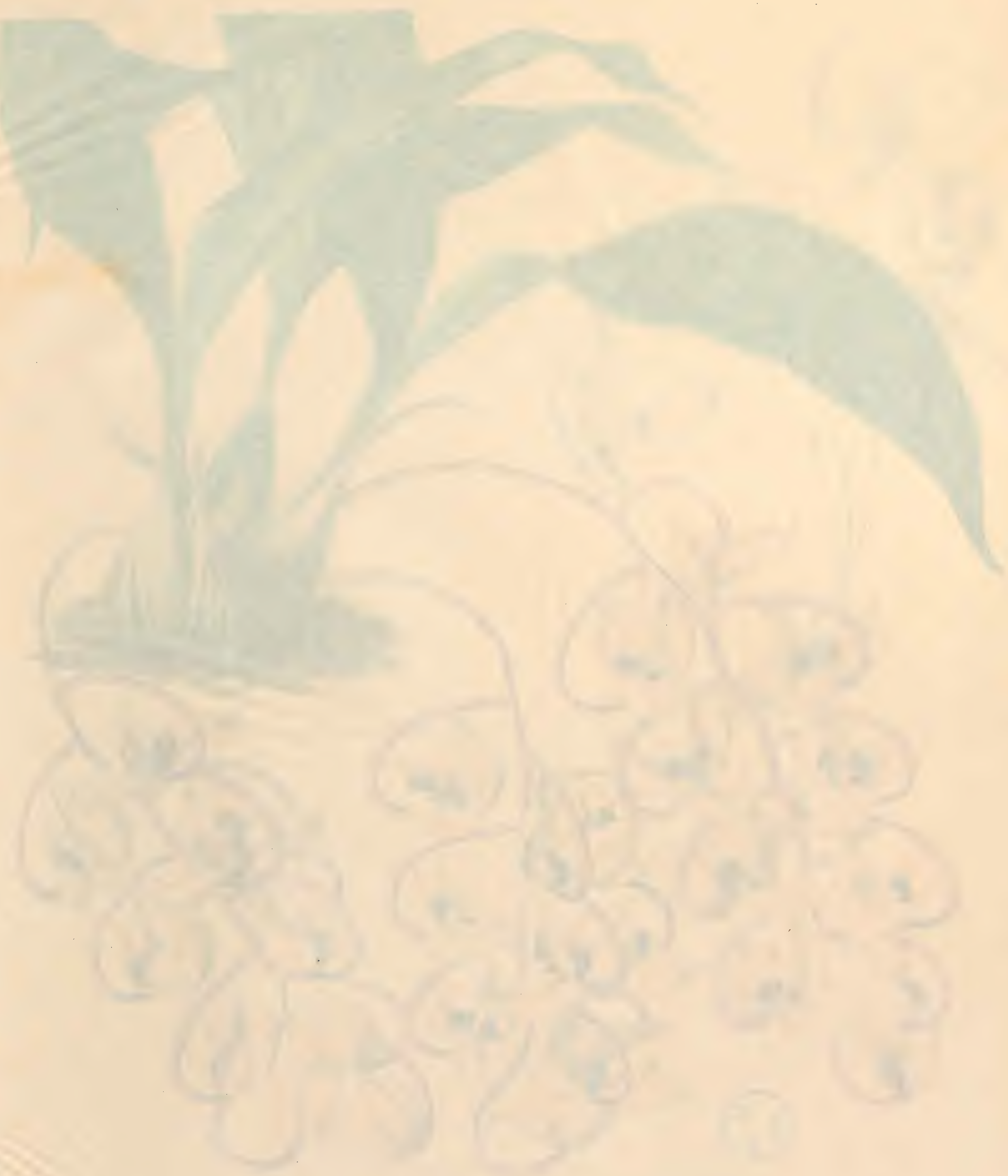
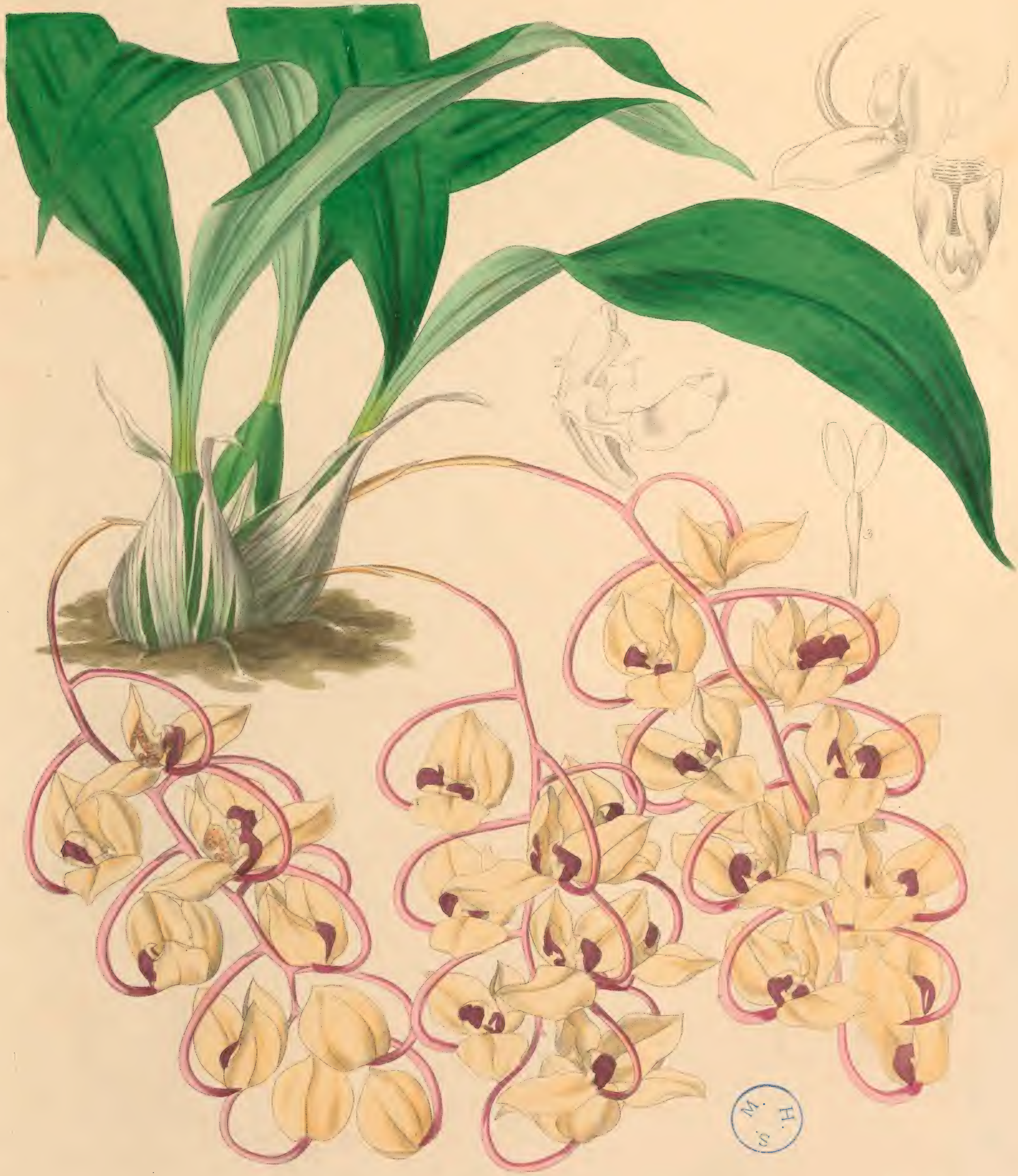


Plate LXIX. √



M. H. S.

Reeve imp.

Acrop~~o~~era Loddigesii

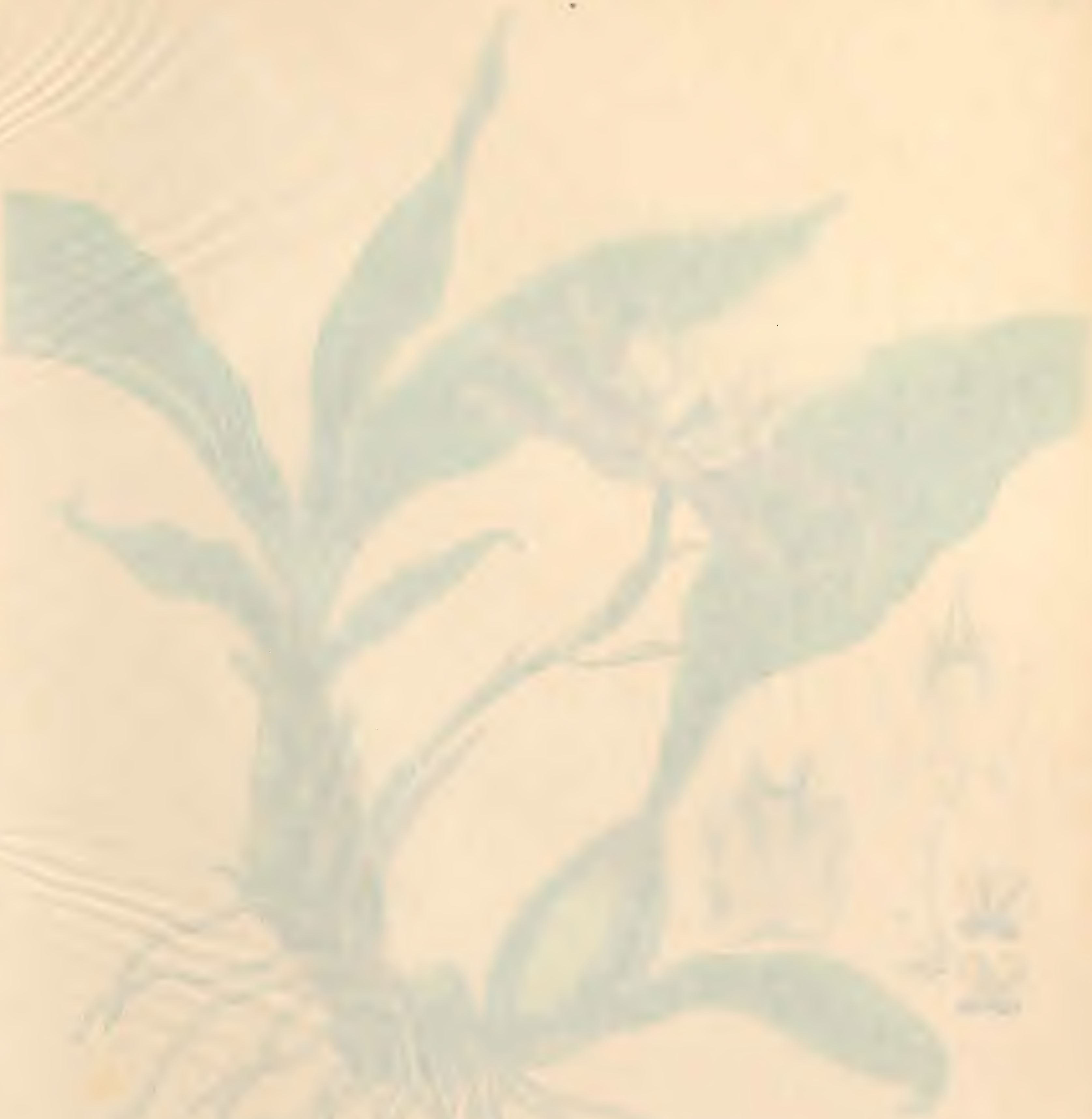
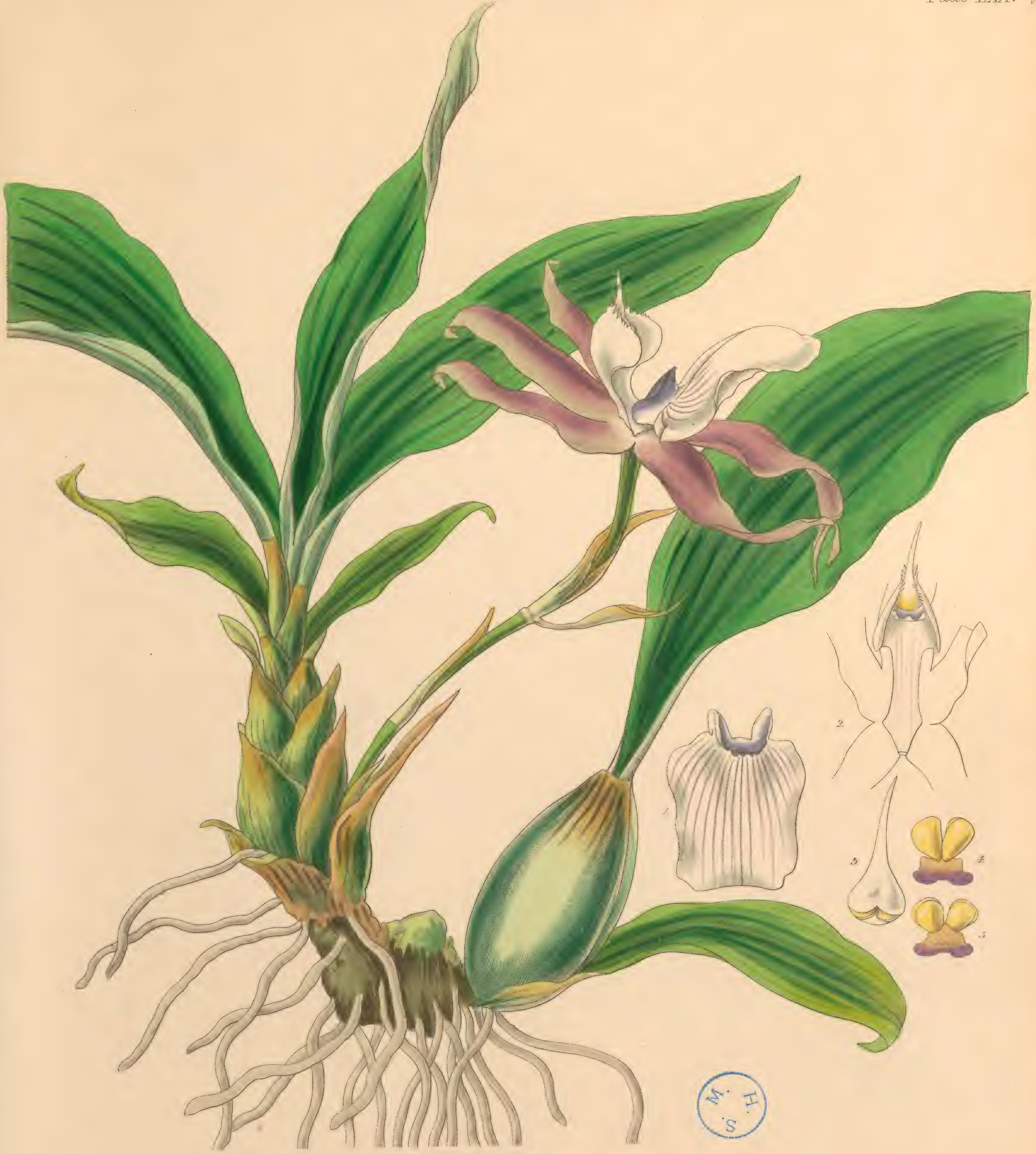


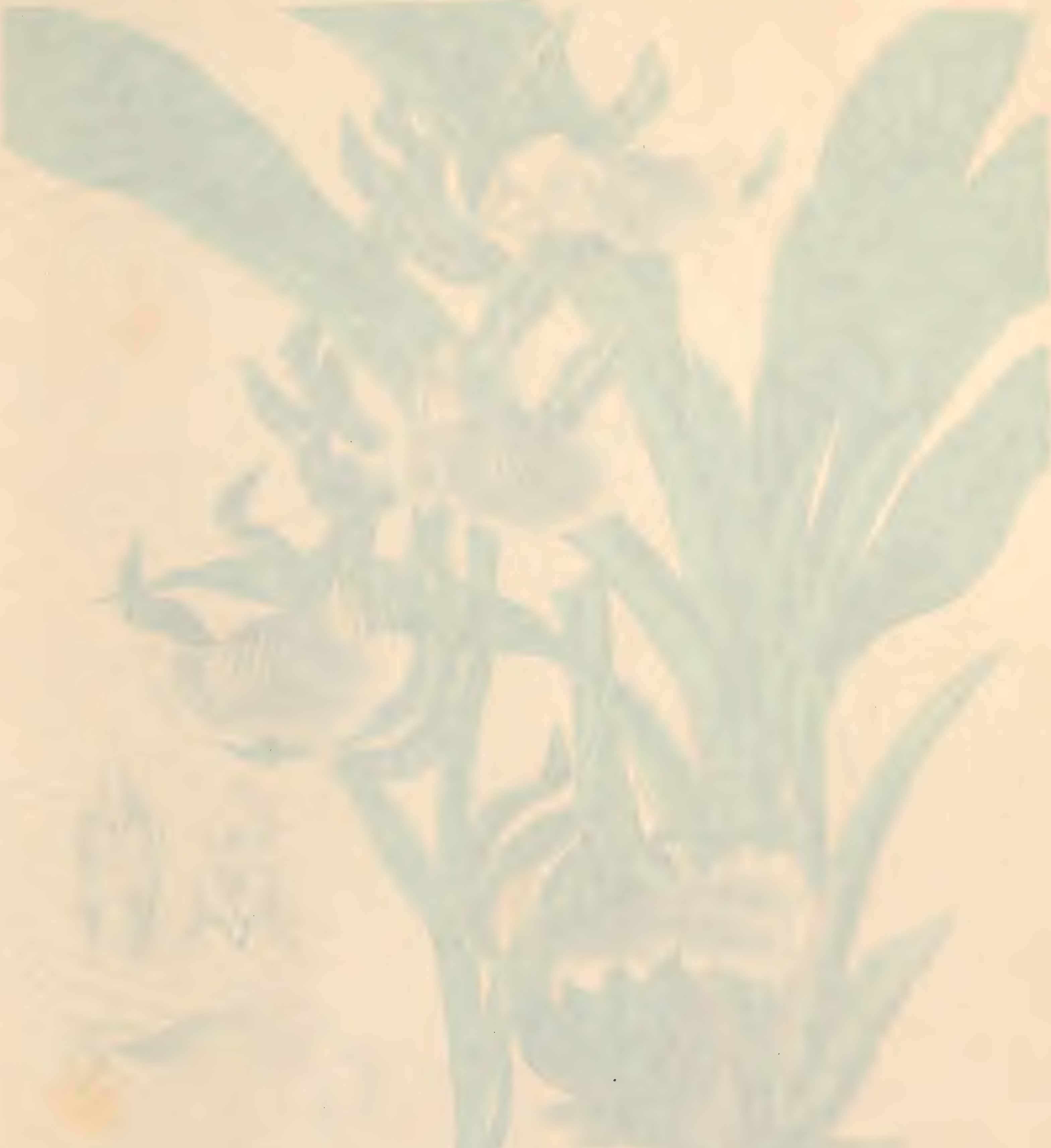
Plate LXX.

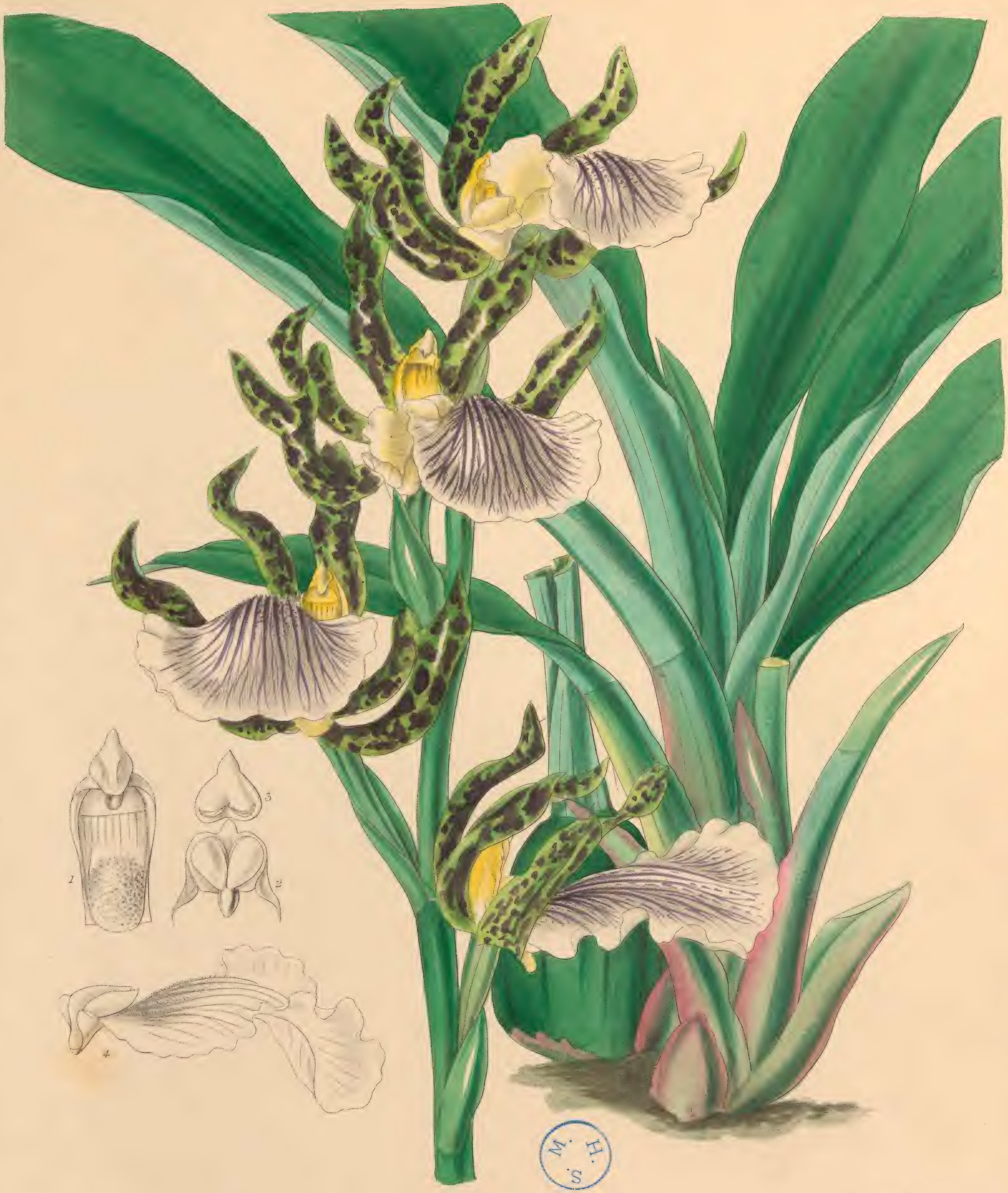


M. H. S.

Reeve, imp.

Zygopetalon rostratum.





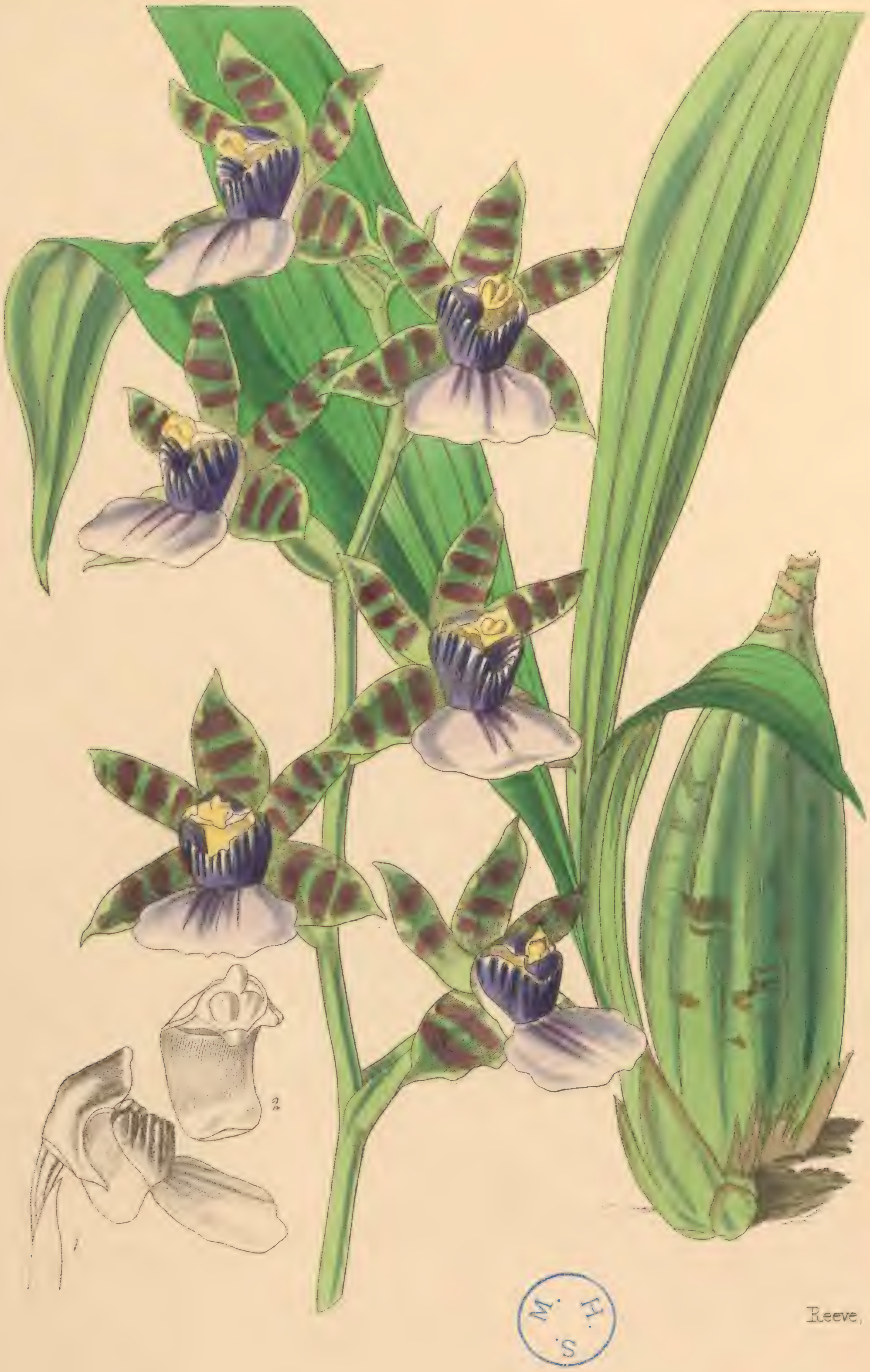
M. H. S.

Reeve, imp

Zygopetalon Mackaii, var. *β crinitum.*

[illegible]

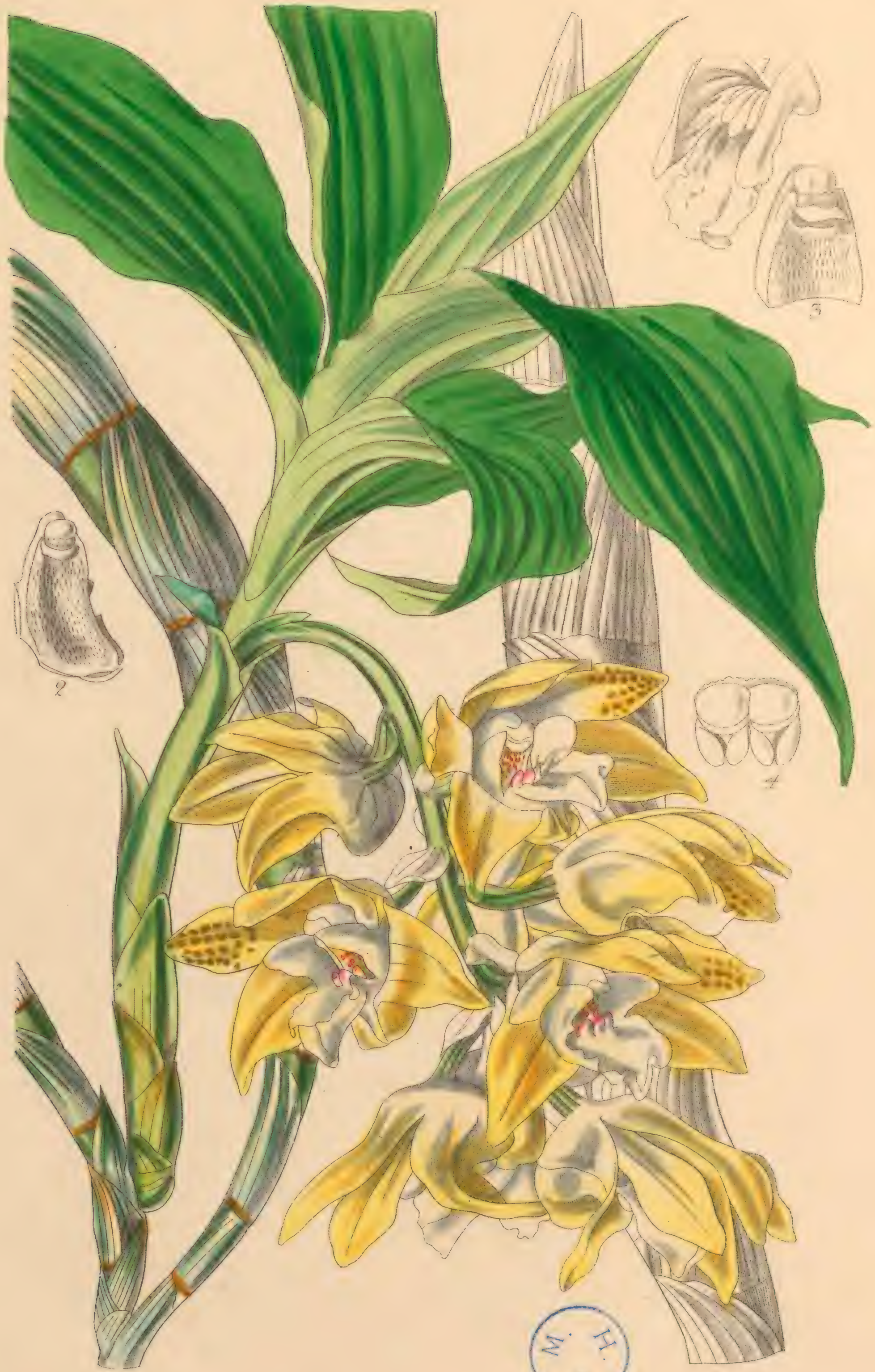
Plate LXXII √



Reeve, imp

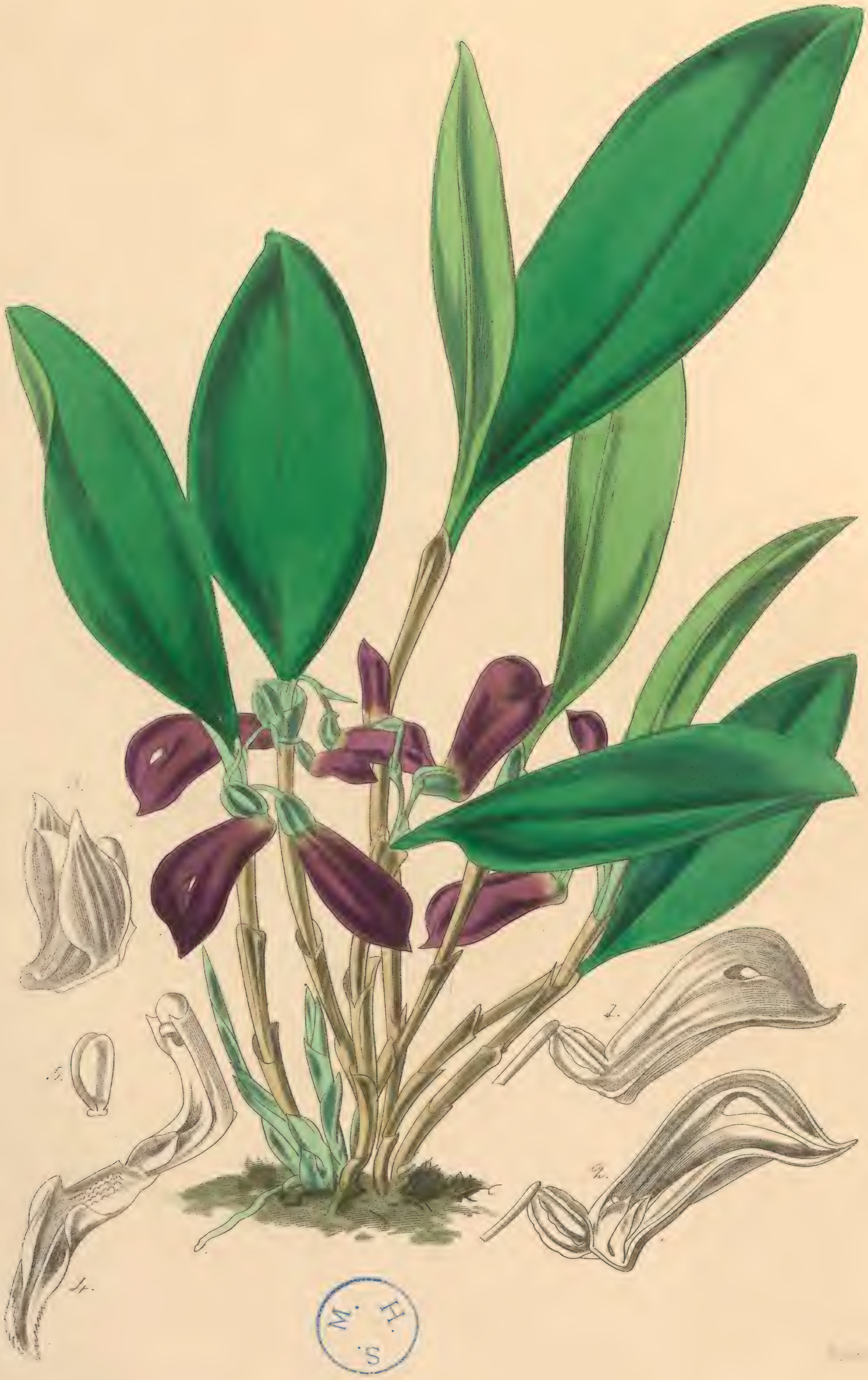
M. H. S.

Zygopetalon maxillare.



M. H. S.

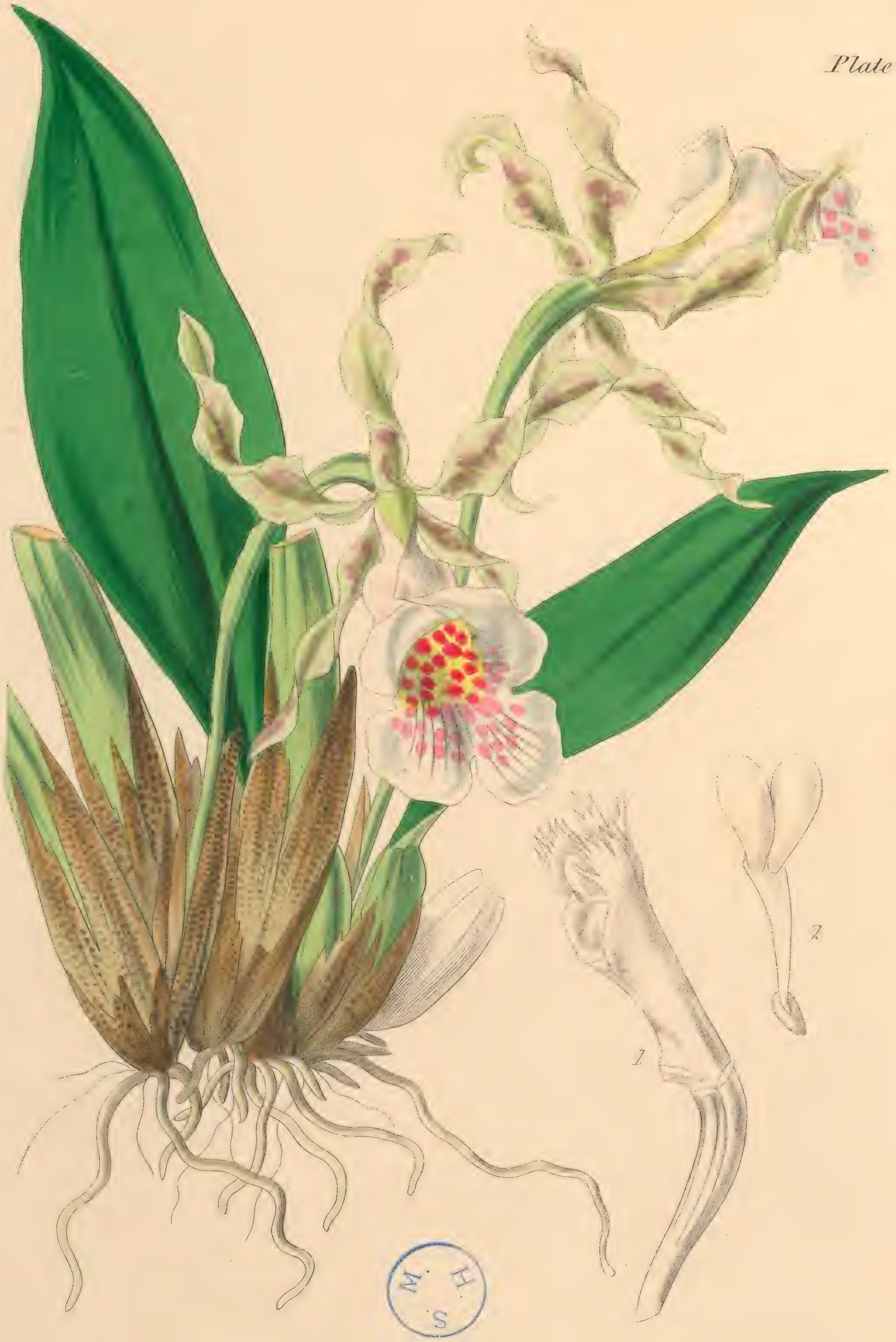
Chysis aurea.



M. H. S.

Masdevallia fenestrata.

Plate 75.



M. H. S.

W. Fitch del. Reeve, imp.

Trichopilia tortilis.

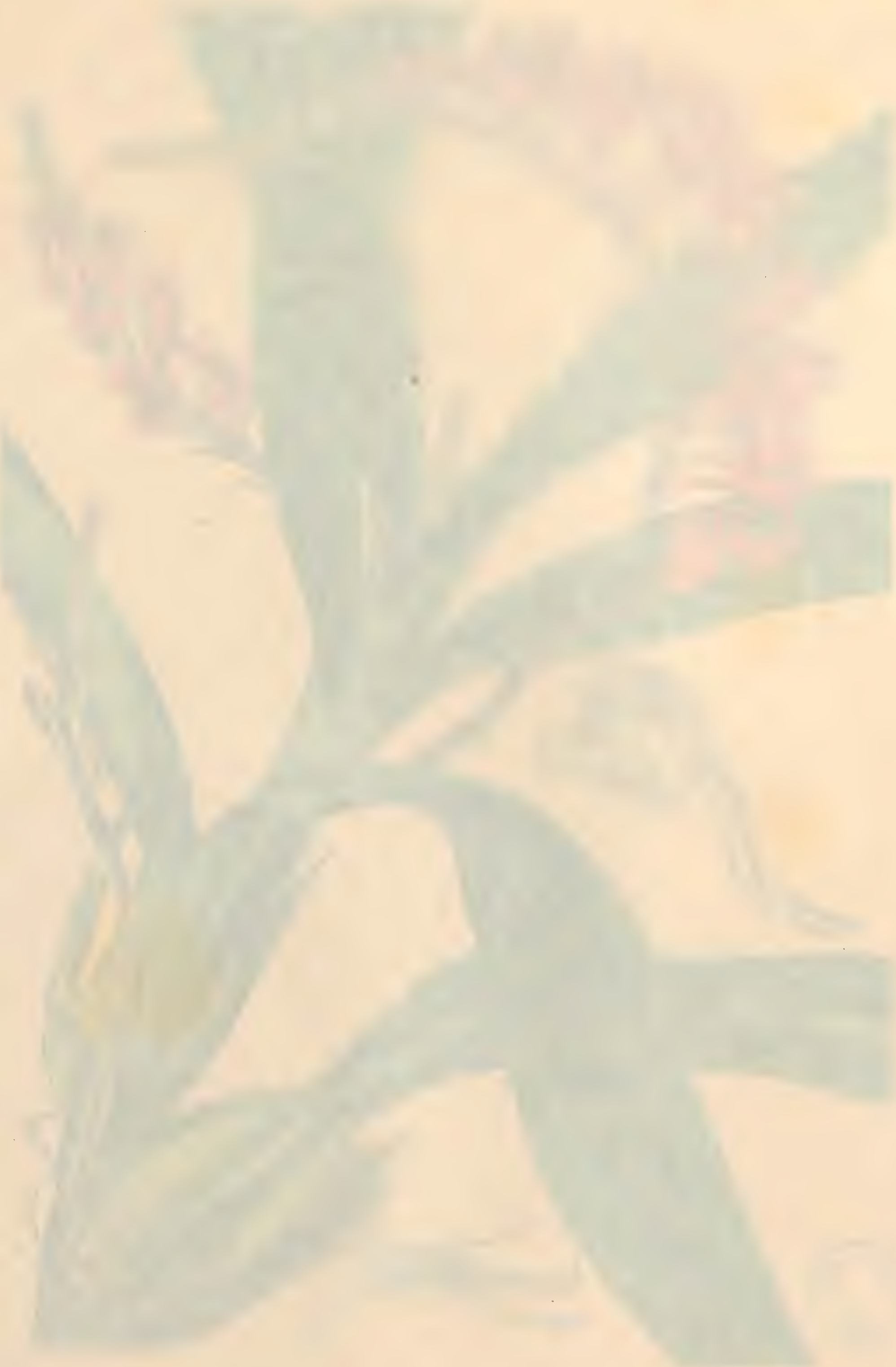
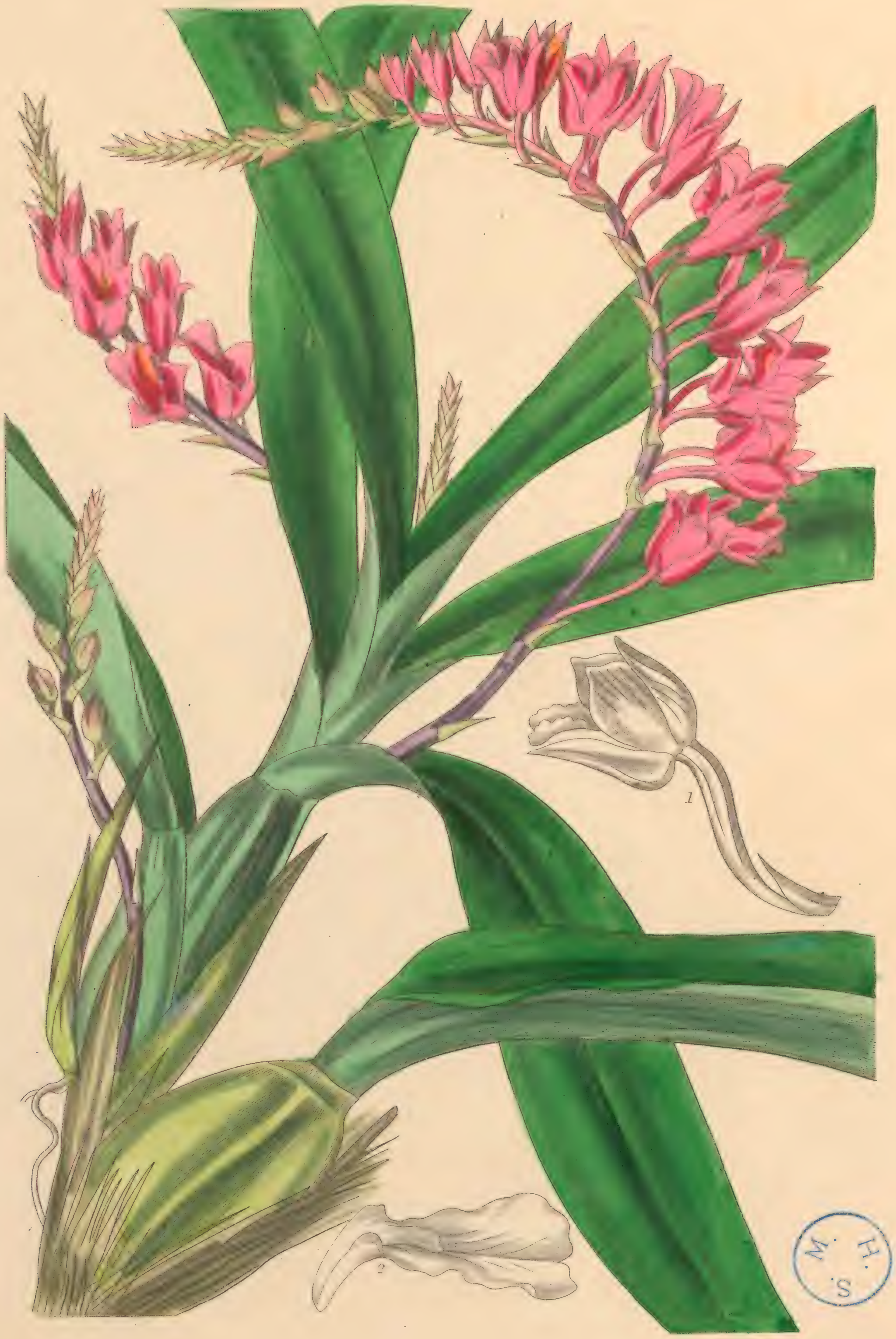


Plate 76. ✓



M. H. S.

Reeve, imp.

Bodriguesia secunda.

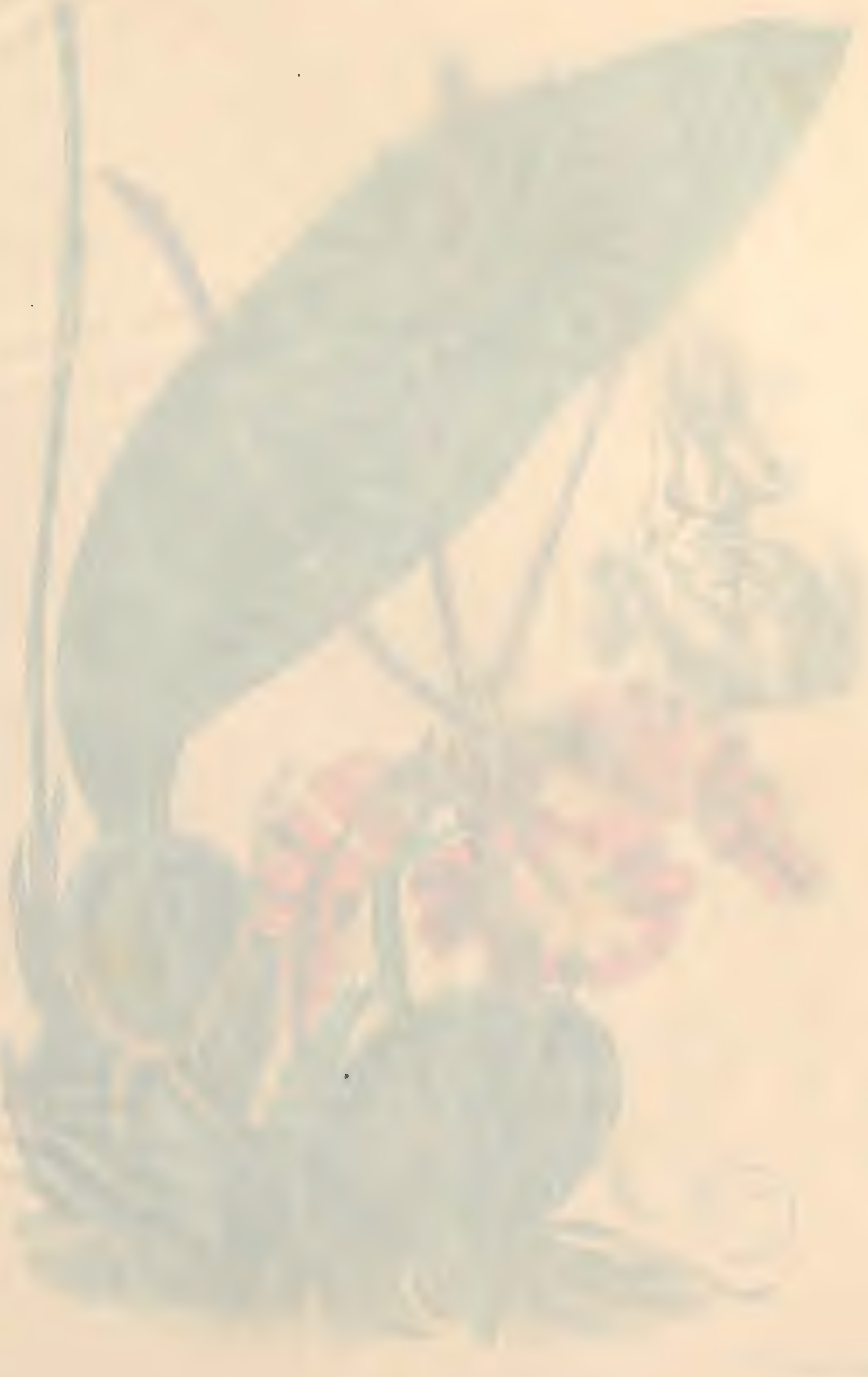
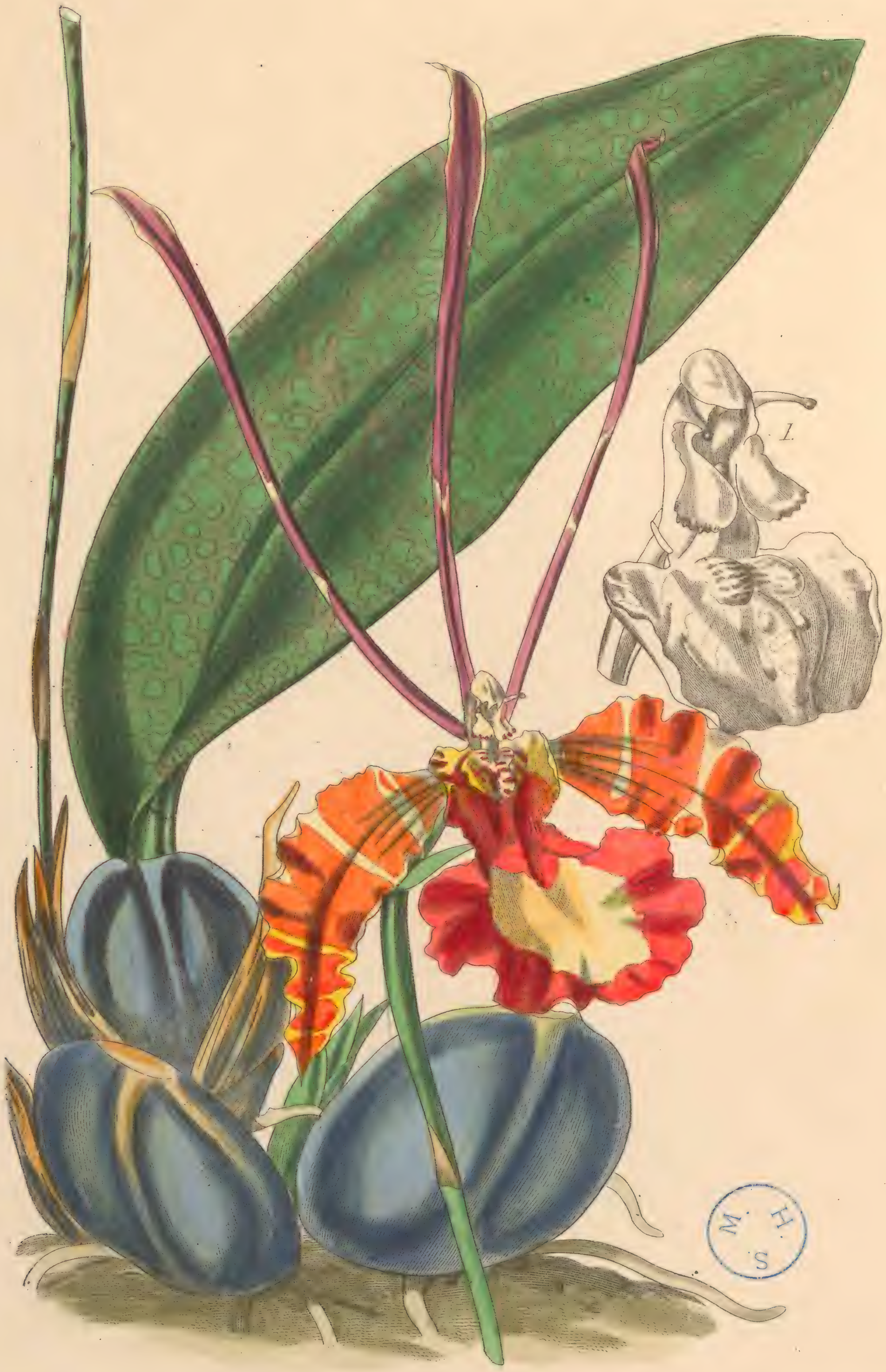


Plate 77.

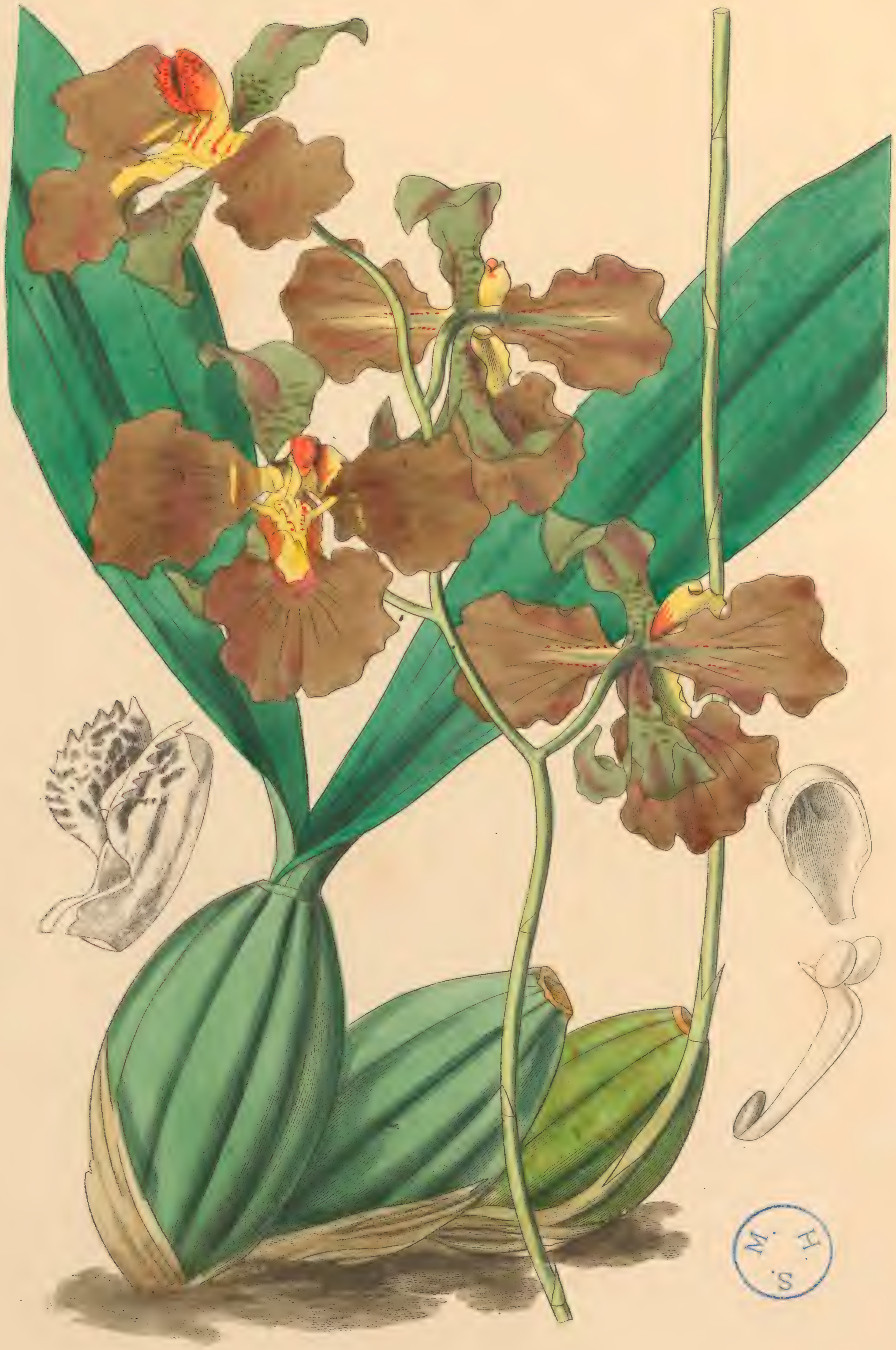


M. H. S.

Reeve, imp.

Oncidium Papilio.

Plate 78.



M. H. S.

Risse, imp

Oncidium crispum.

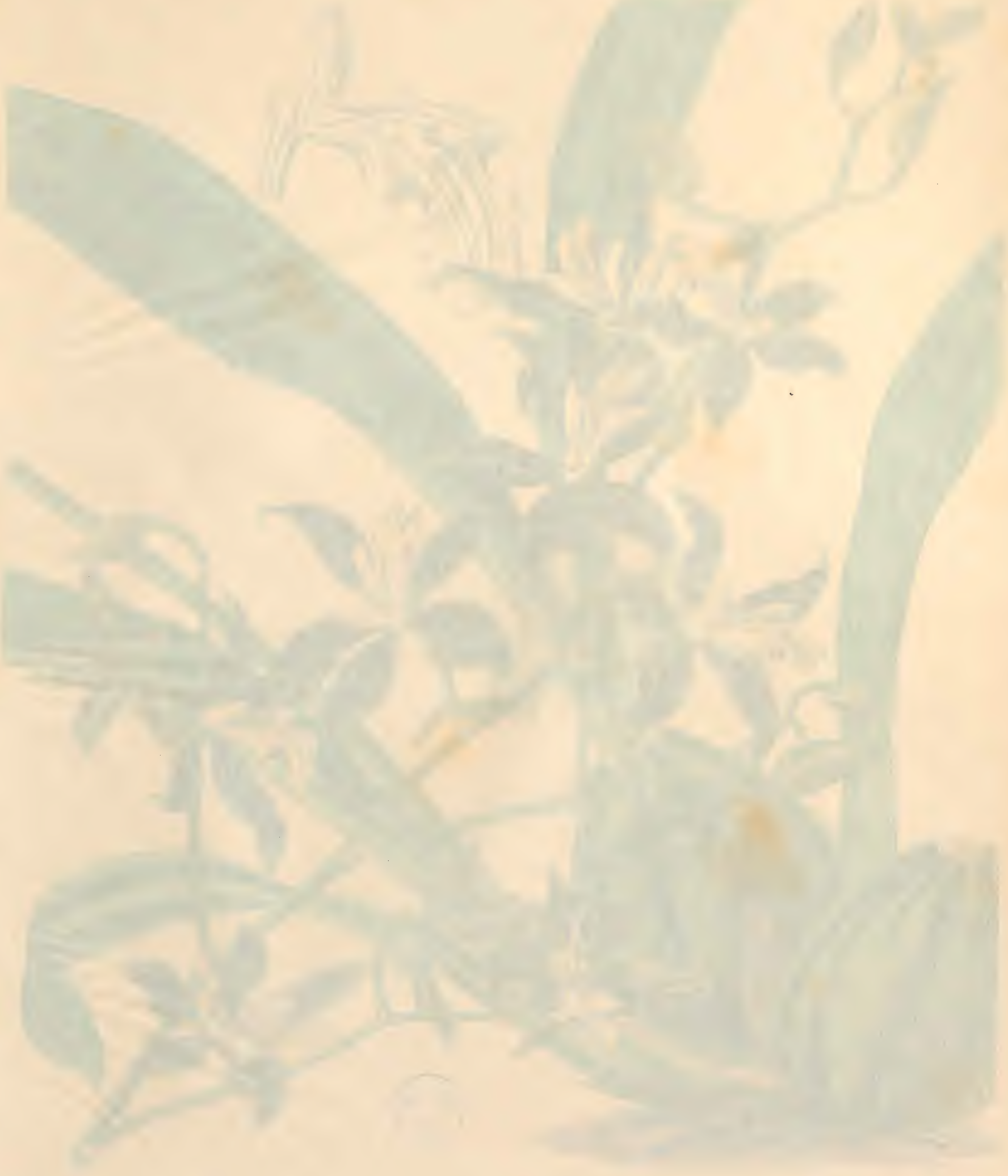
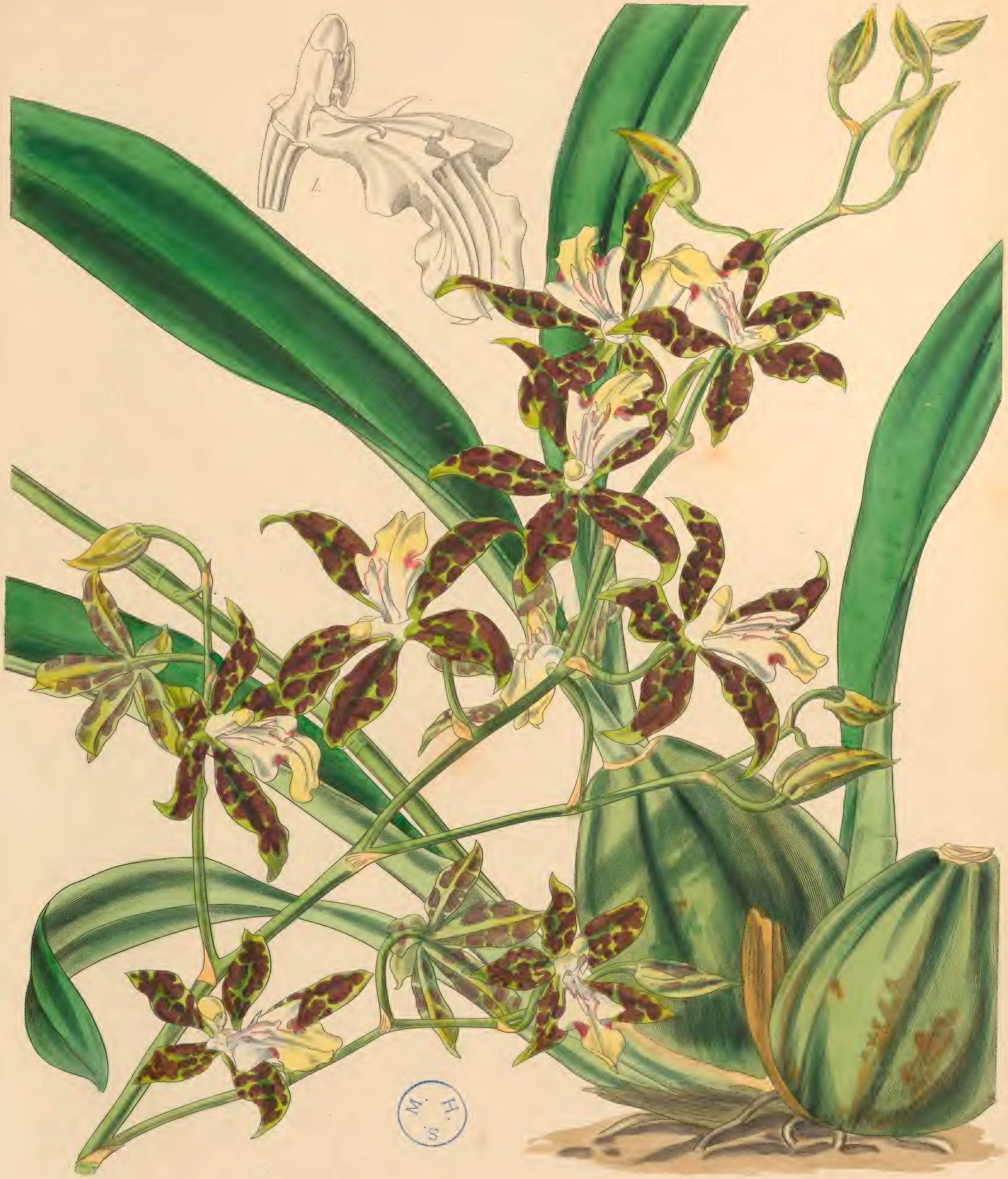


Plate 79. ✓



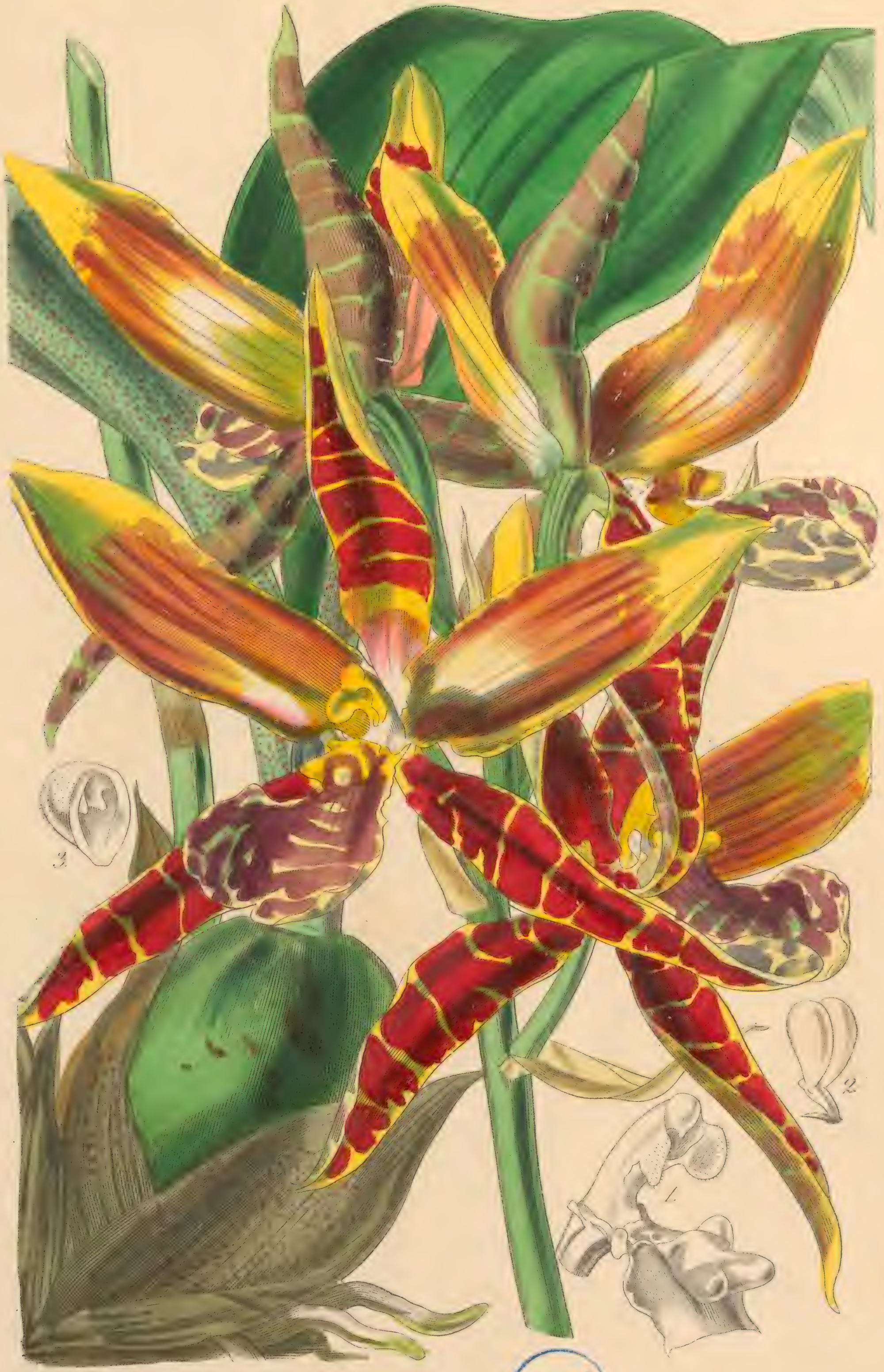
M. H. S.

W. Fitch, del.

Reeve imp.

Cyrtochilum maculatum.

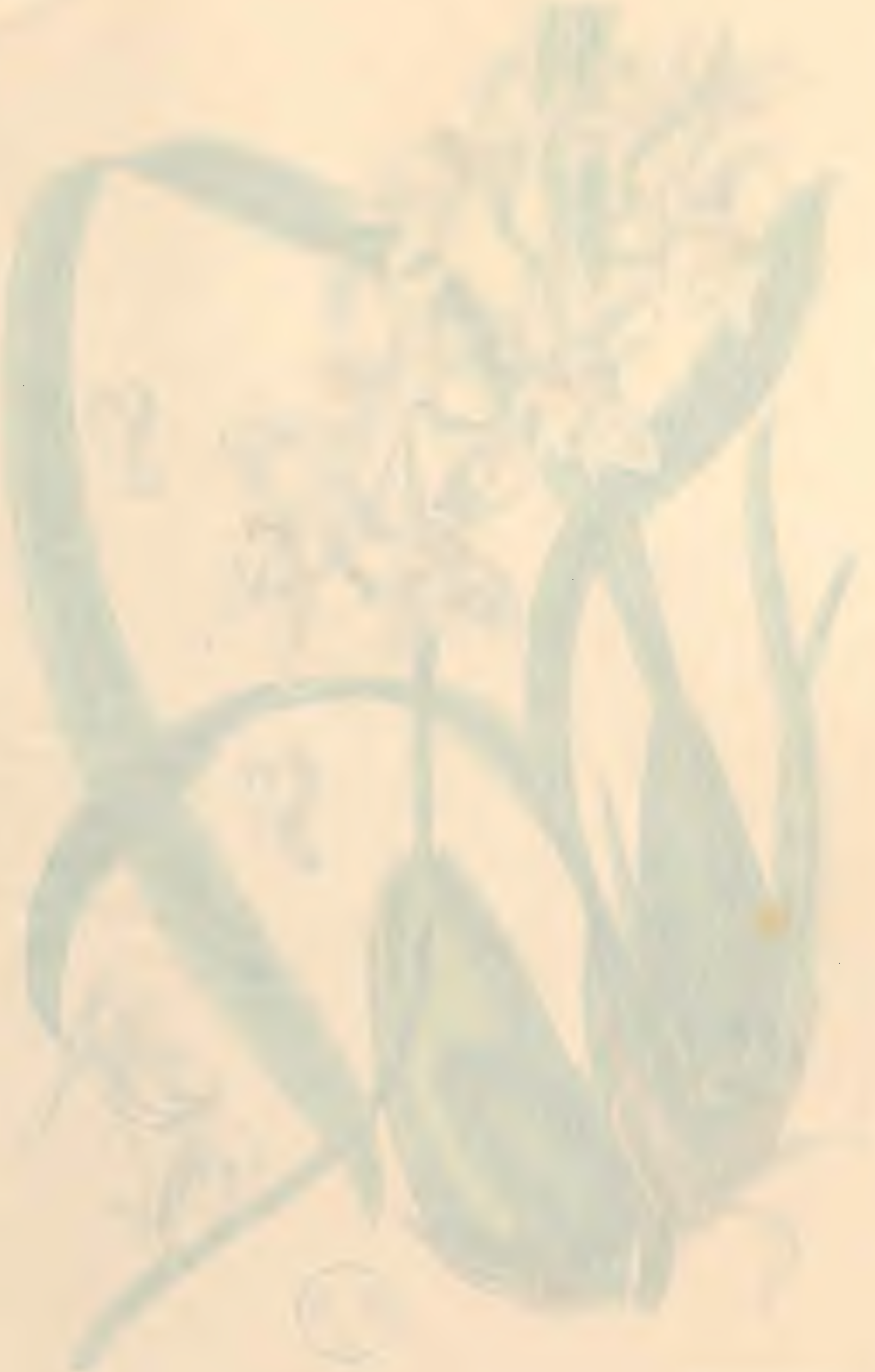
Plate XII.



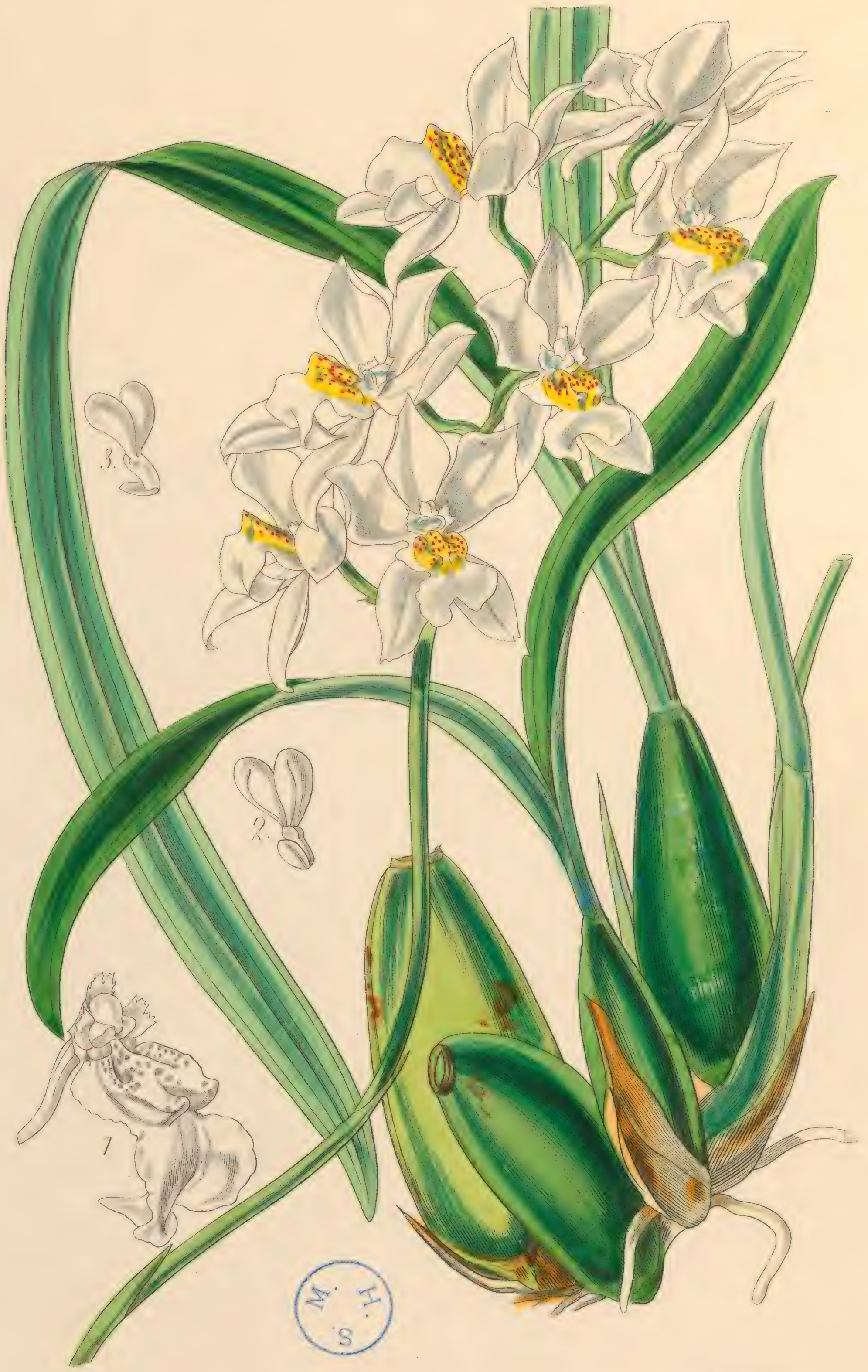
M. H. S.

Reeve imp.

Odontoglossum grande.



[illegible]

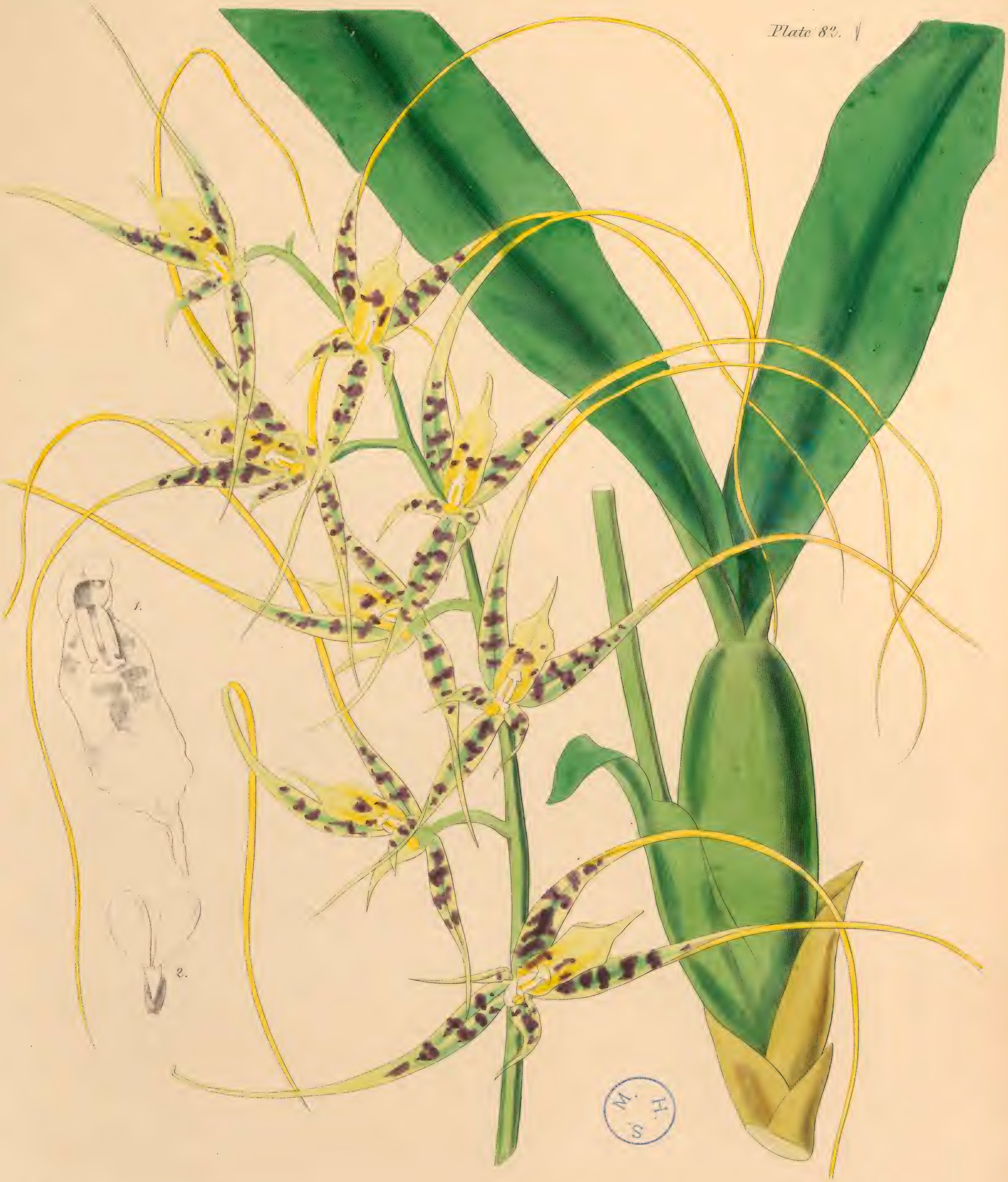


M. H. S.

Reeve, Benham & Reeve, imp.

Odontoglossum pulchellum.

Plate 82. ✓

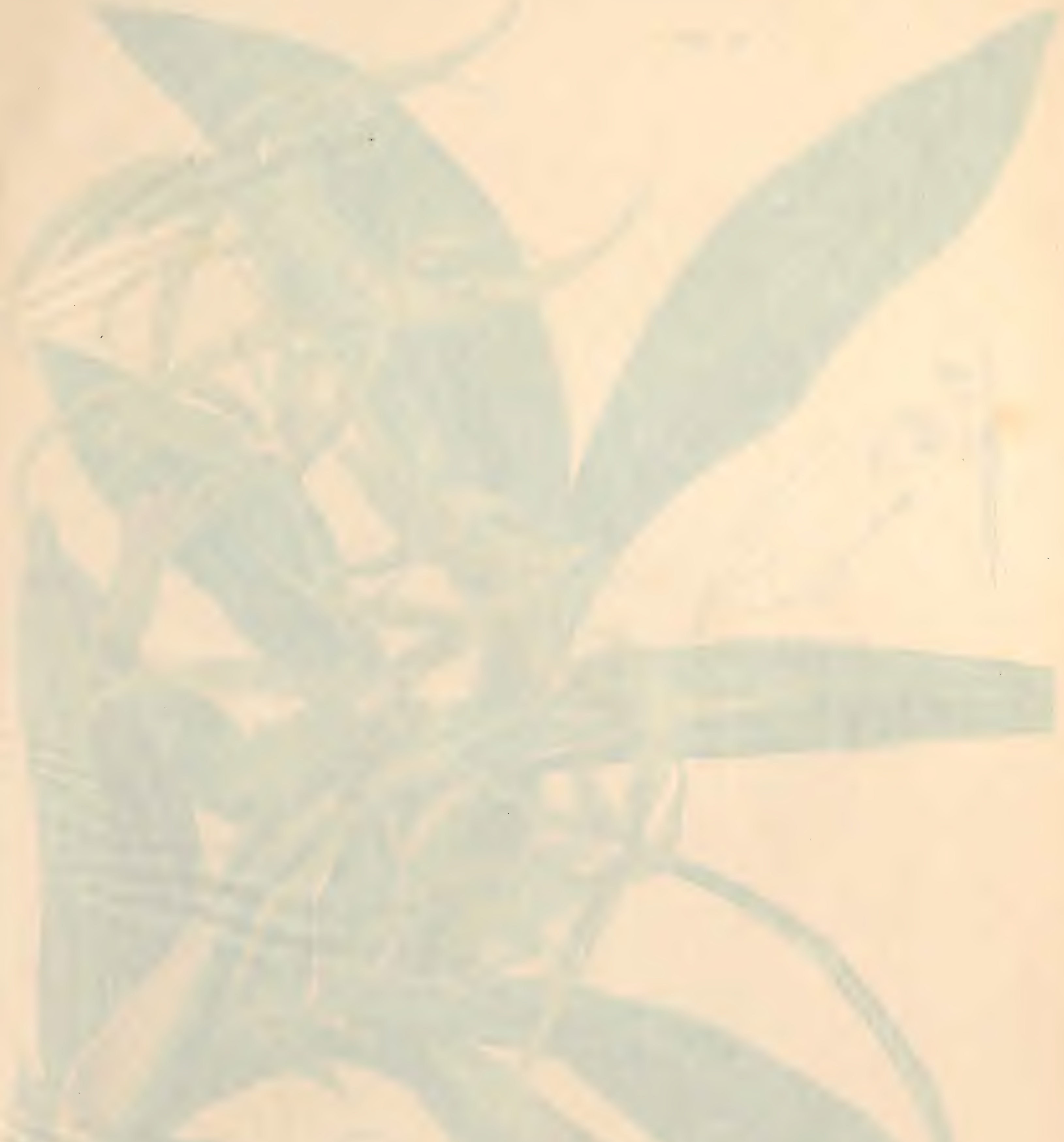


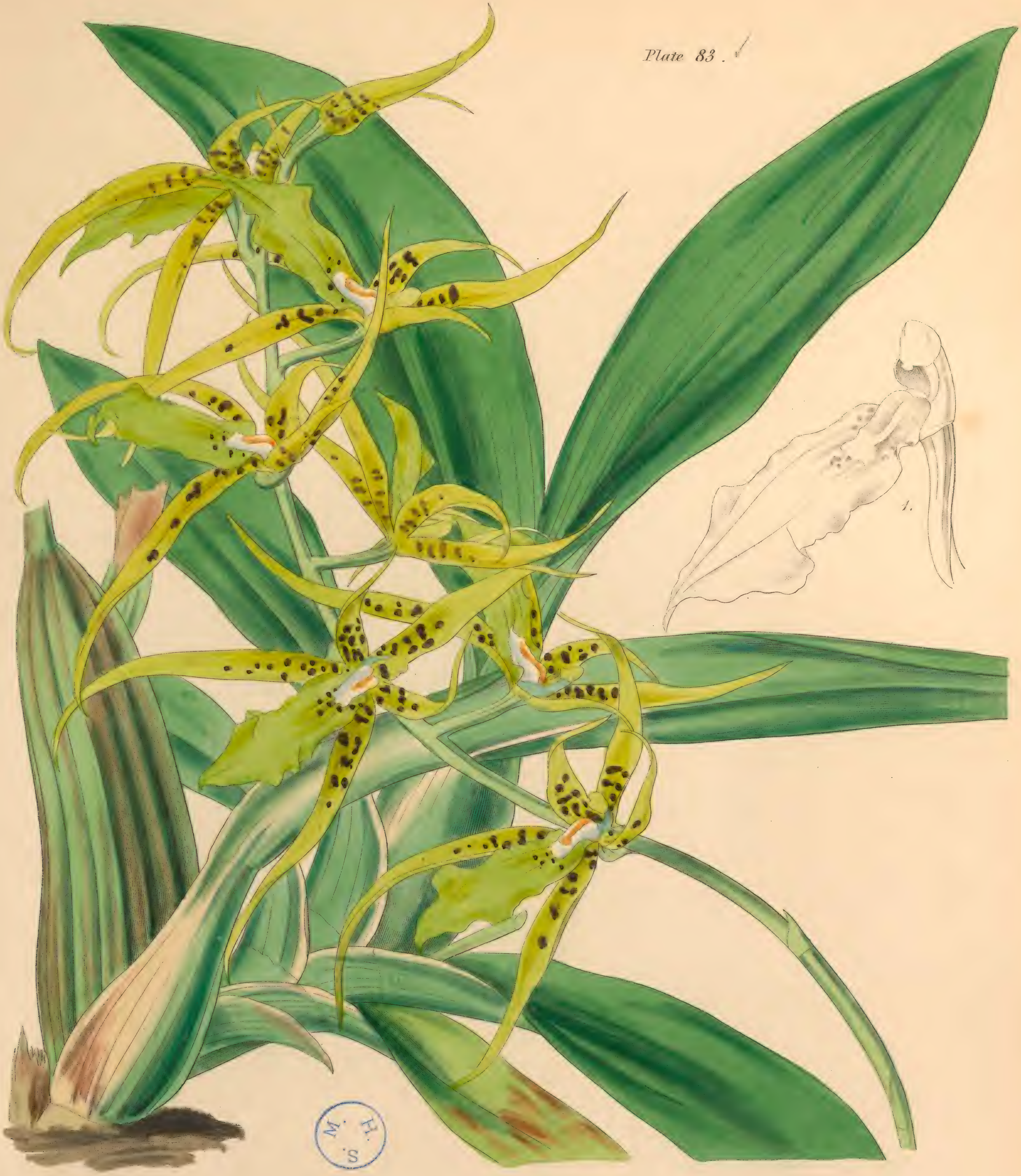
W. Fitch, del.

Reeve, imp.

Brassia caudata.

M. H. S.





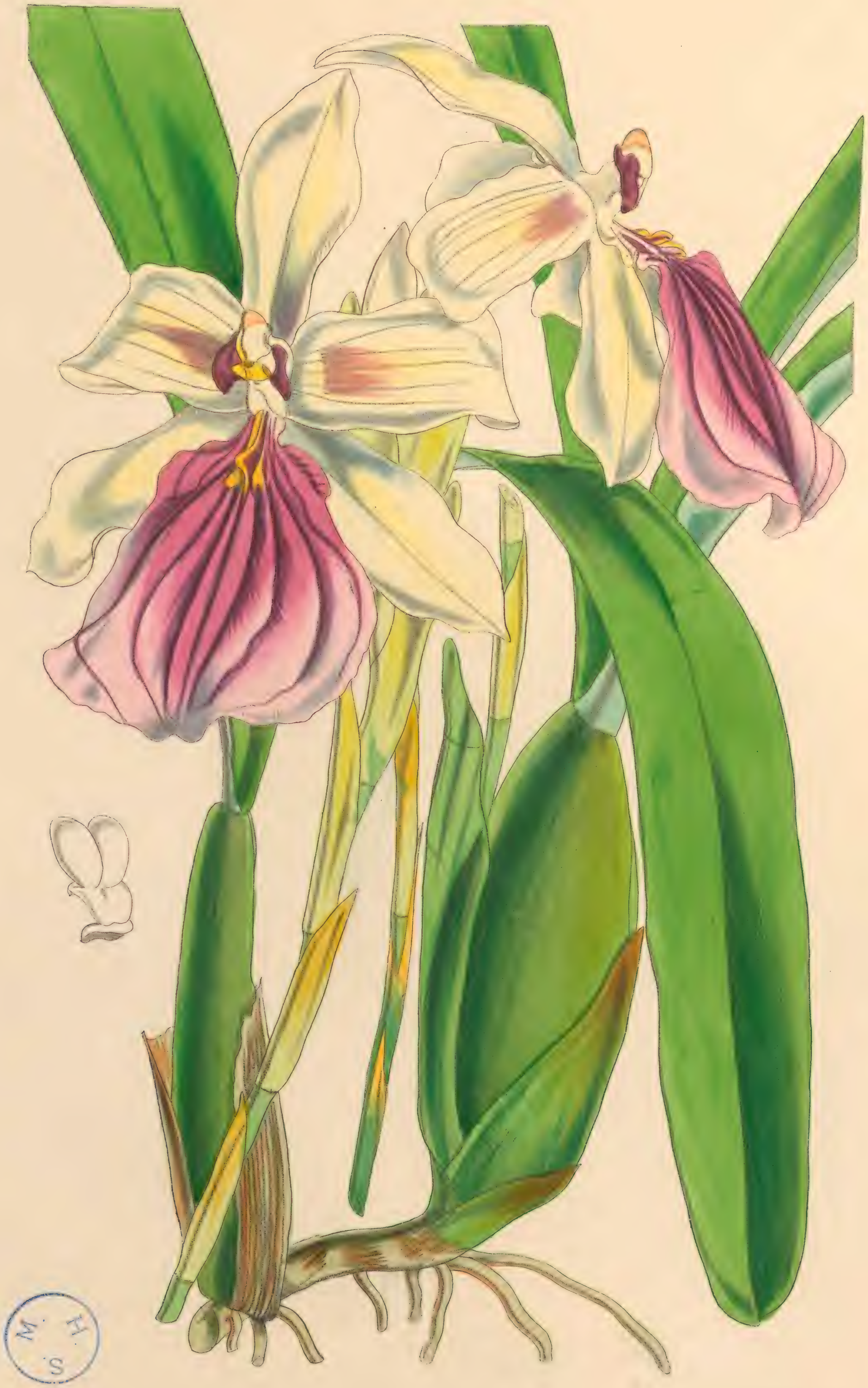
M. H. S.

W. Fitch, del.

Reeve, imp

Brassia Lanceana.

Pl. LXXXIV. √

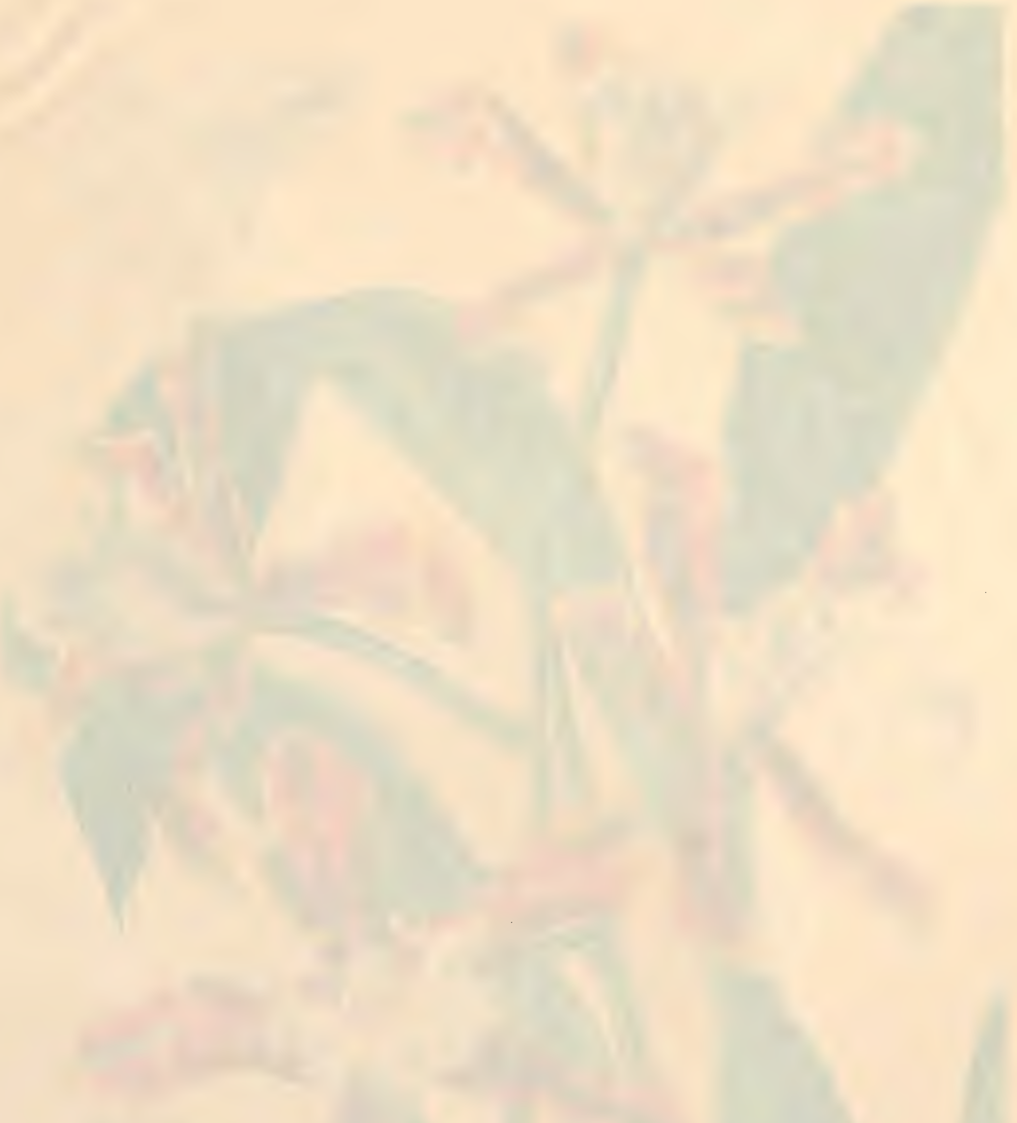


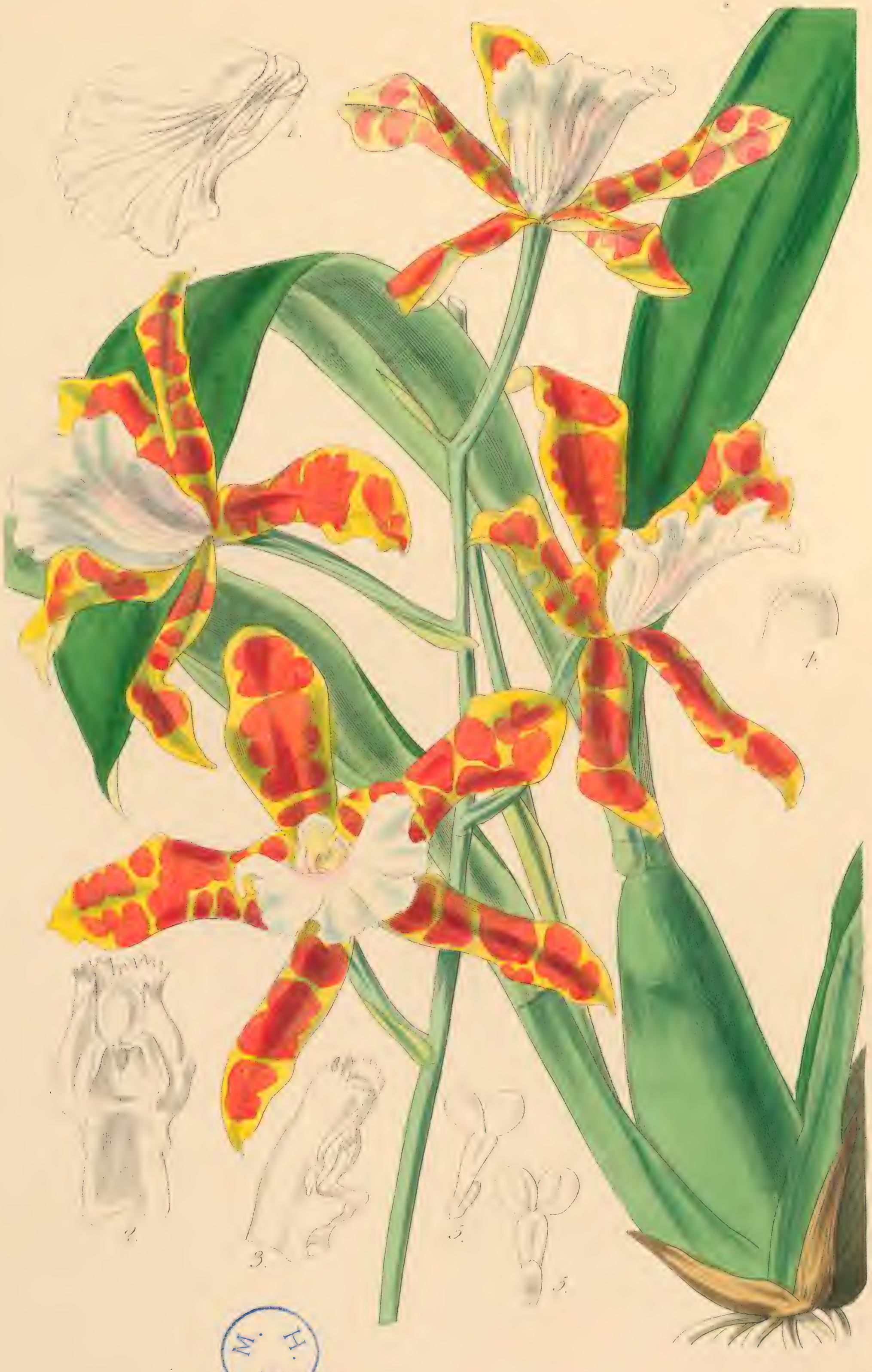
M. H. S.

Fitch, del et lith.

Reeve, Benham & Reeve, imp.

Miltonia spectabilis.



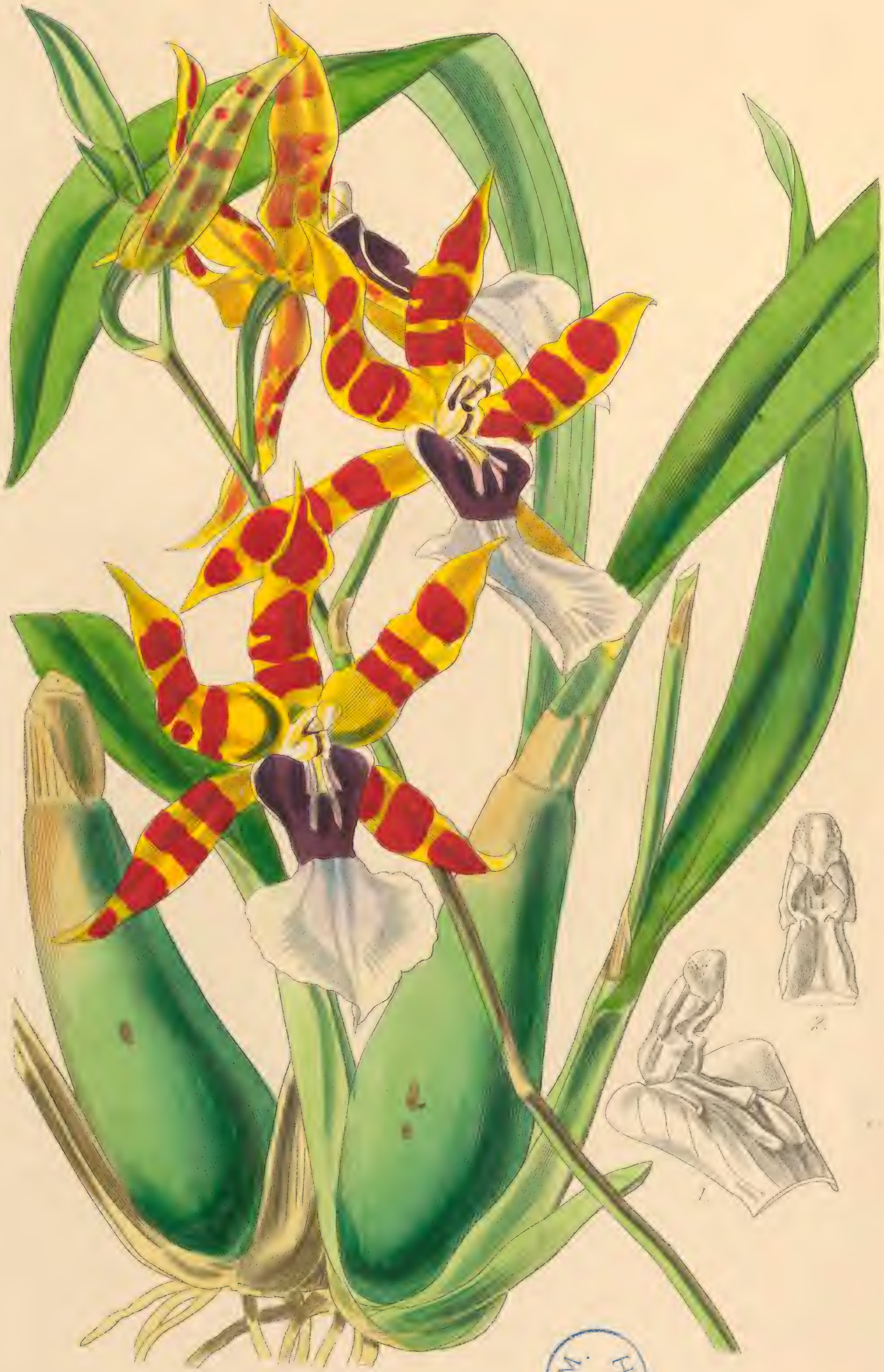


M. H. S.

W. Fitch, del

Reeve, imp

Miltonia candida, var. flavescens.



M. H. S.

W. Fitch del. [illegible] imp.

Miltonia Clowesii.

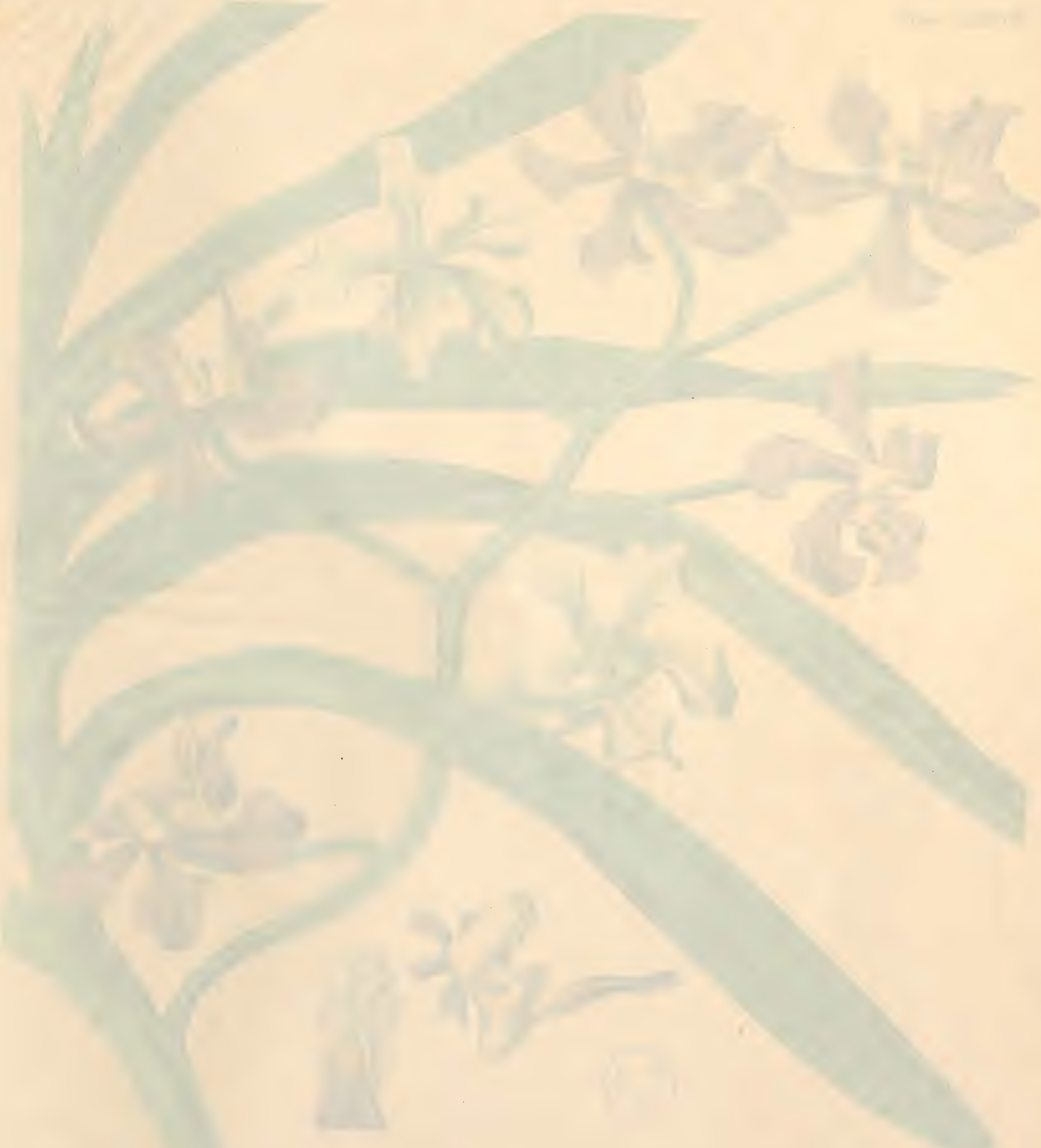
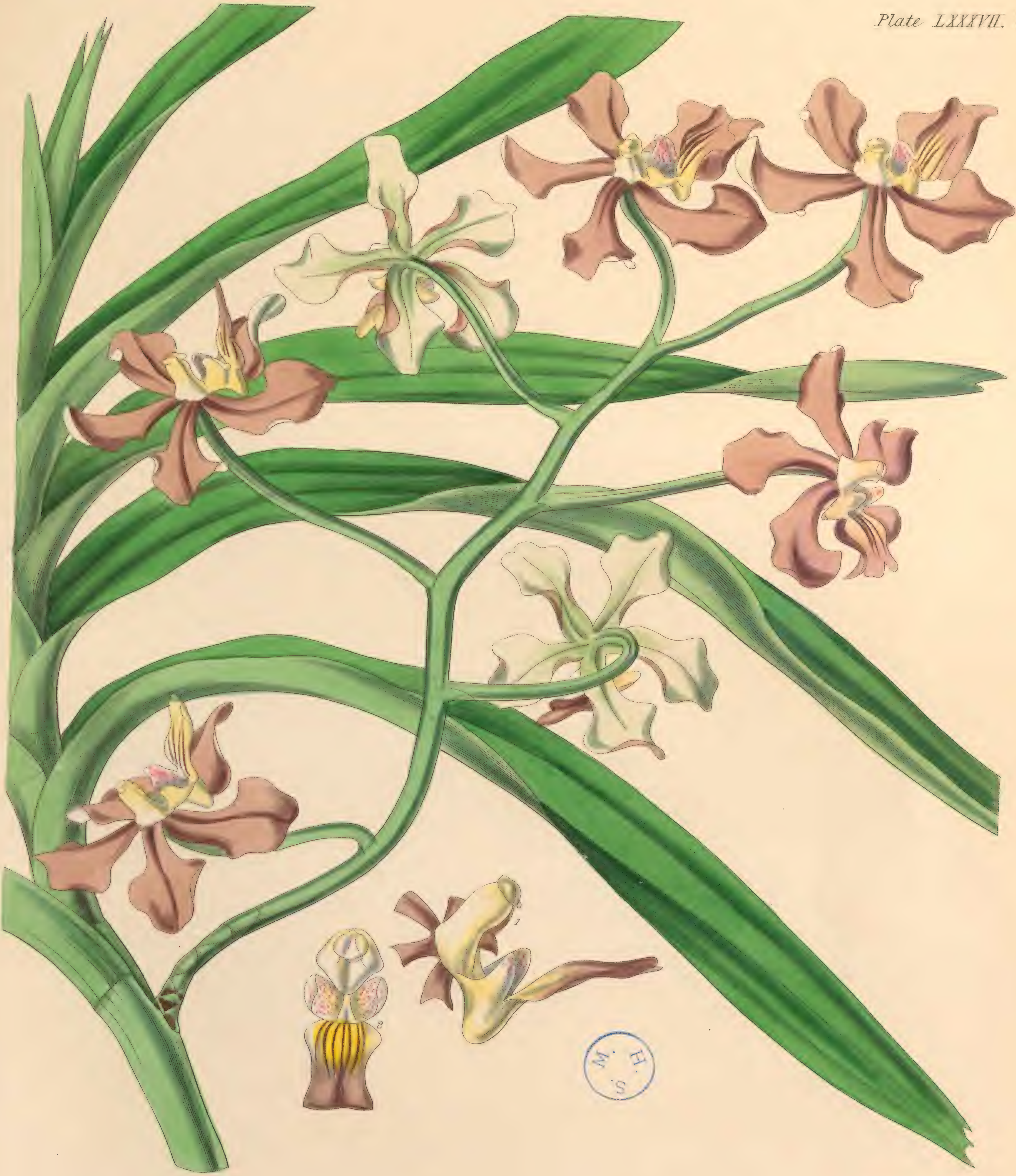


Plate LXXXVII.

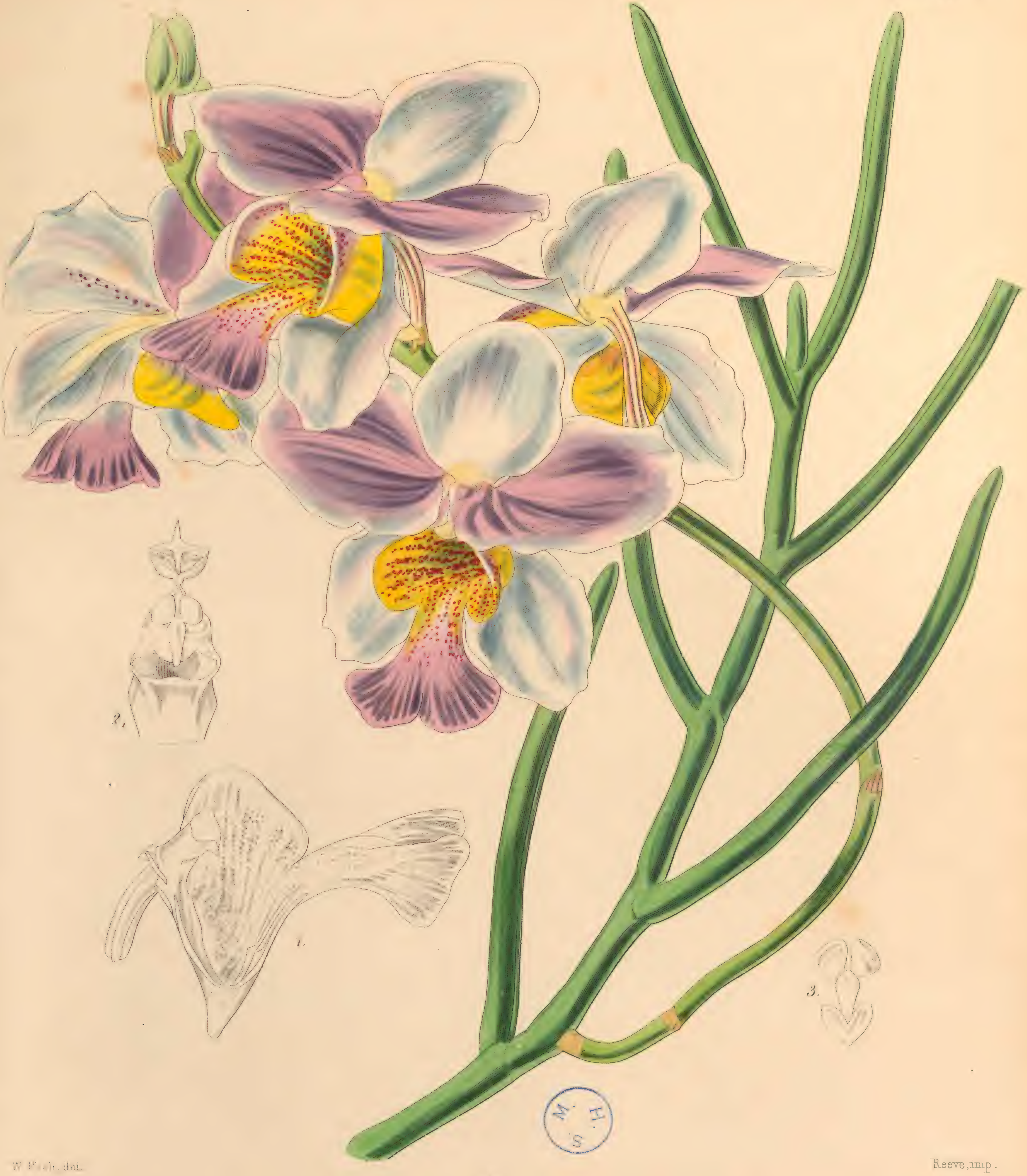


M. H. S.

Vanda Roxburghi; var. unicolor.

Reeve, Benham & Reeve imp.

Plate 88. √



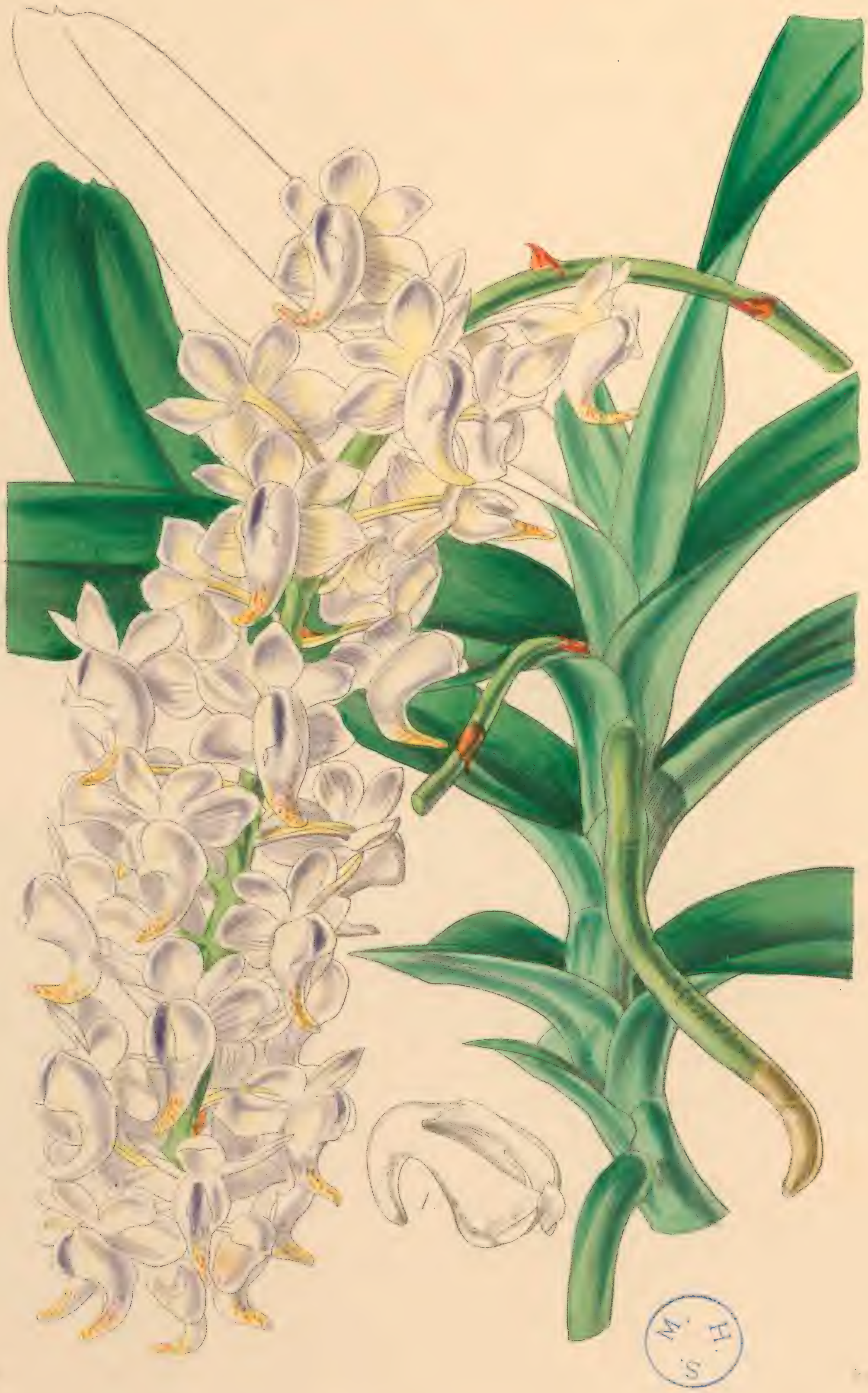
M. H. S.

W. Fitch, del.

Reeve, imp.

Vandateres.

Plate 89.



W. Fitch, del.

[illegible]

M. H. S.

Aerides odoratum.

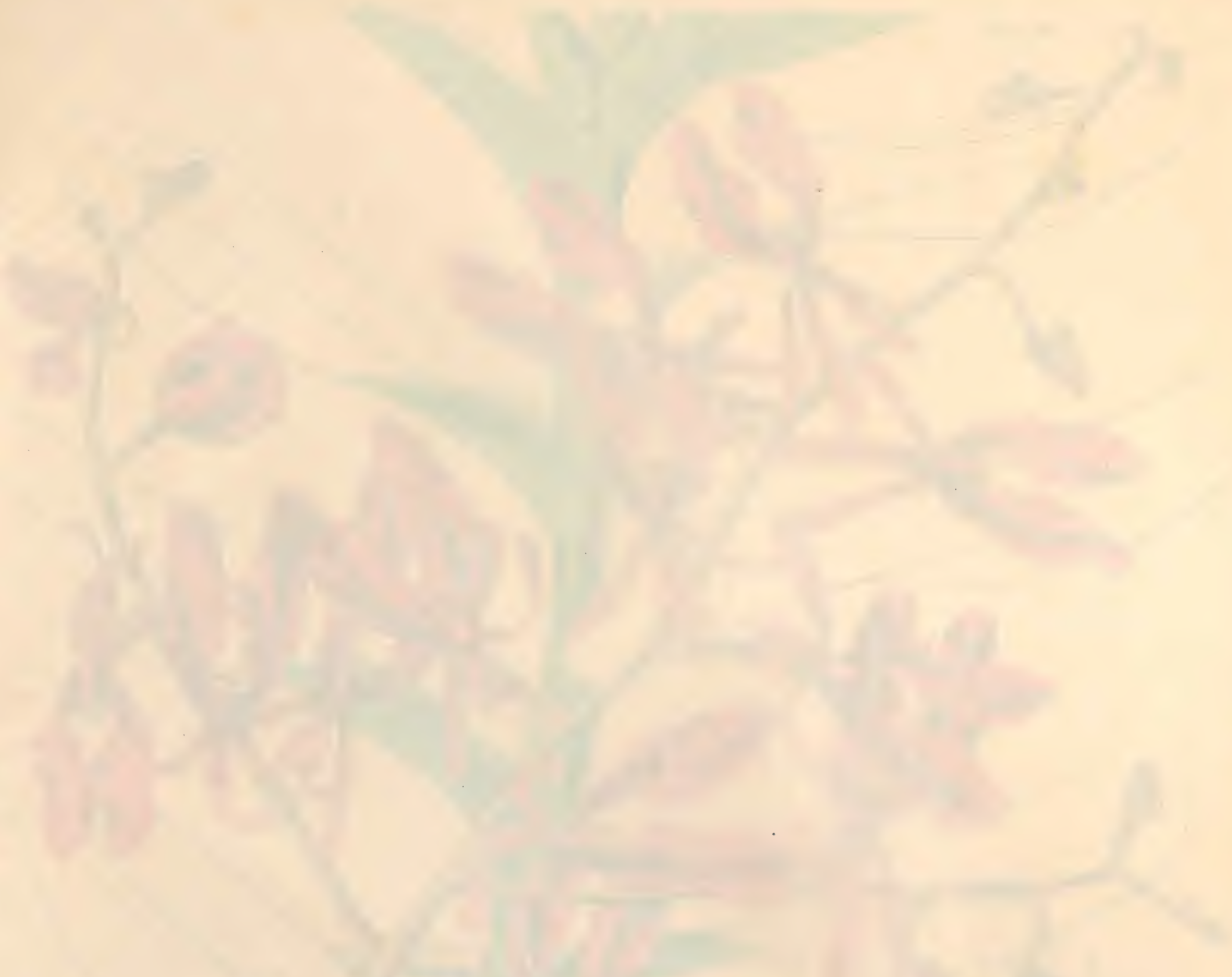
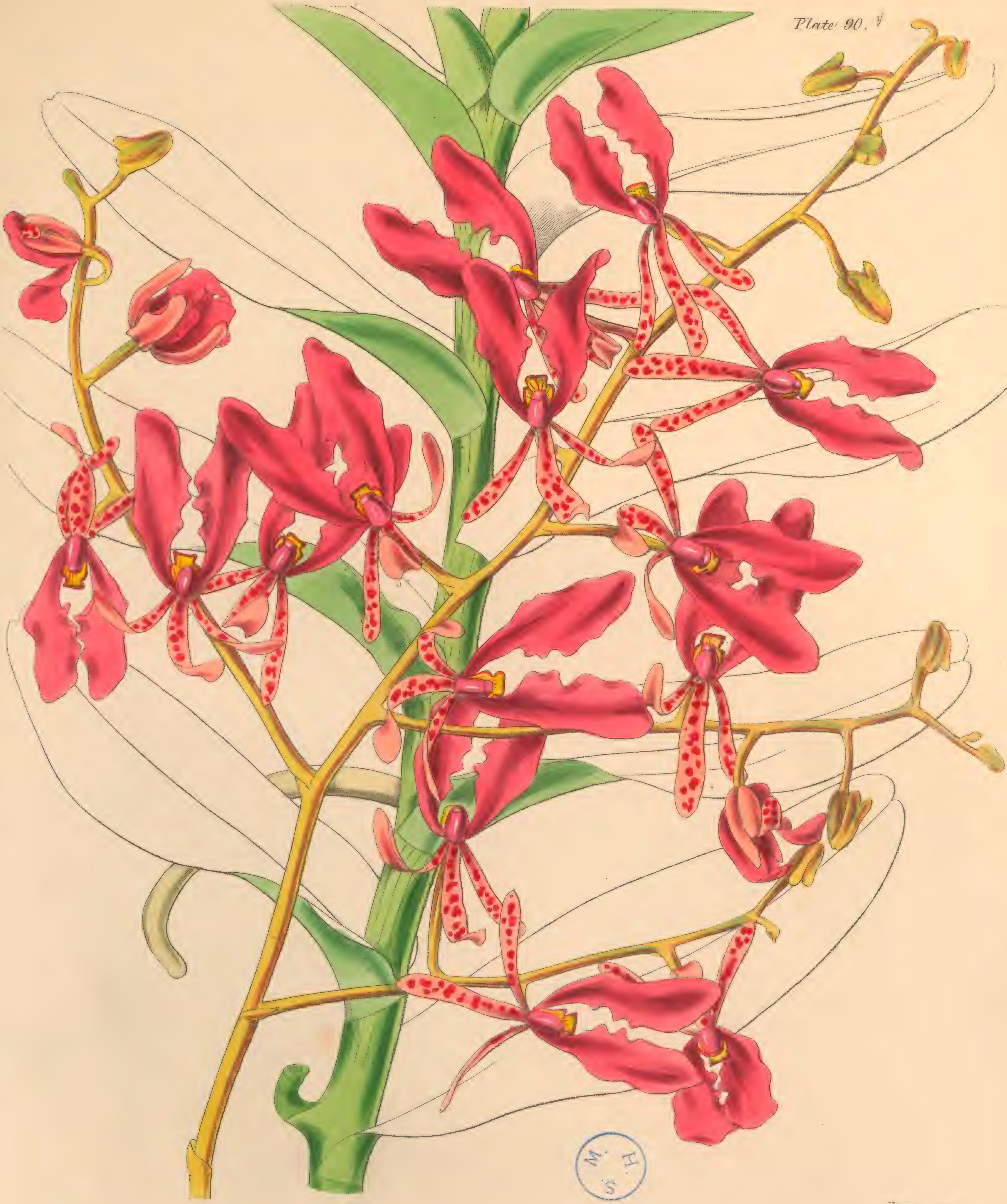


Plate 90.

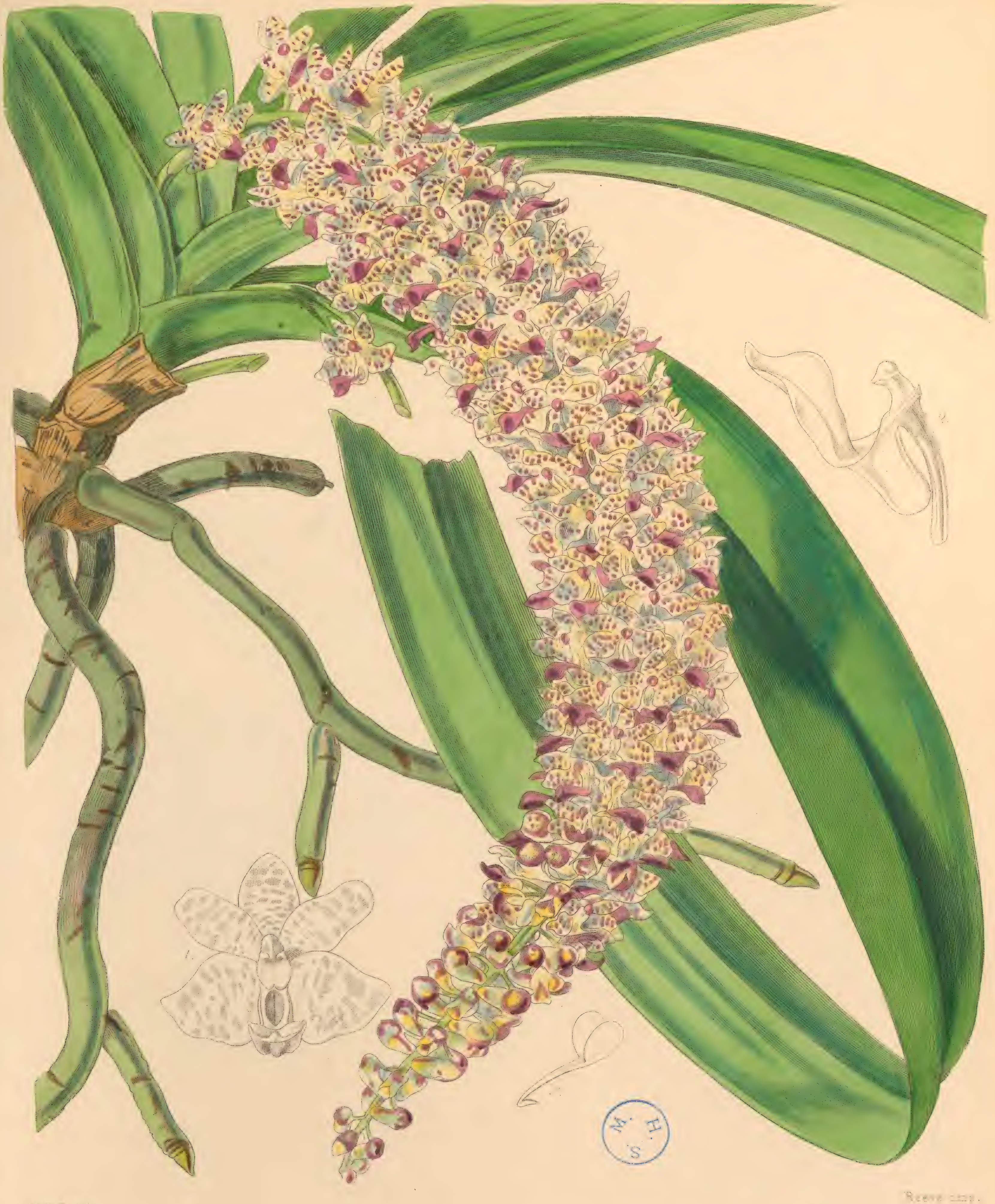


W. Fitch, del.

Reeve, imp.

Renanthera coccinea.

M. H. S.



M. H. S.

W. Fitch. del.

Reeve imp.

Saccolabium guttatum.

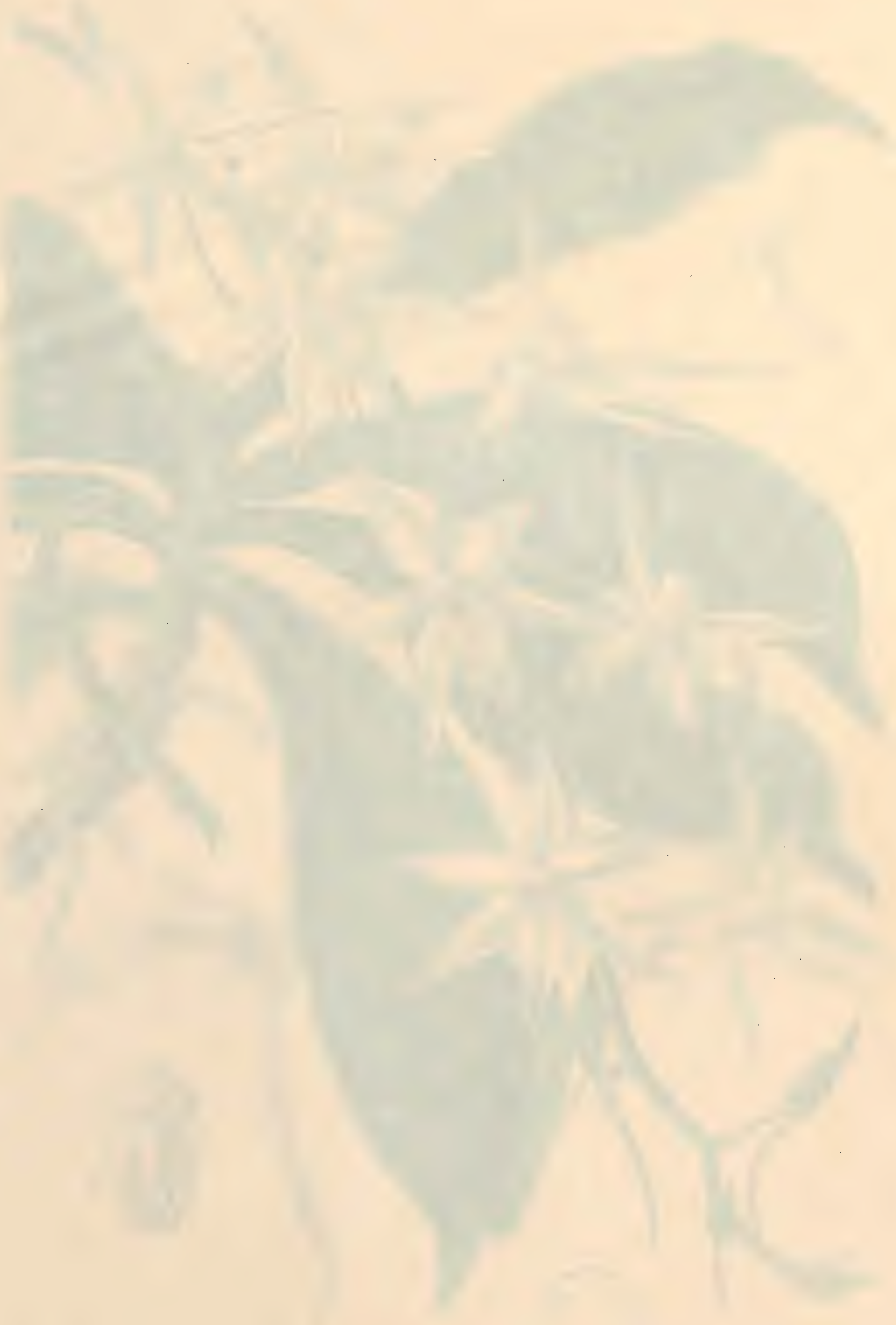
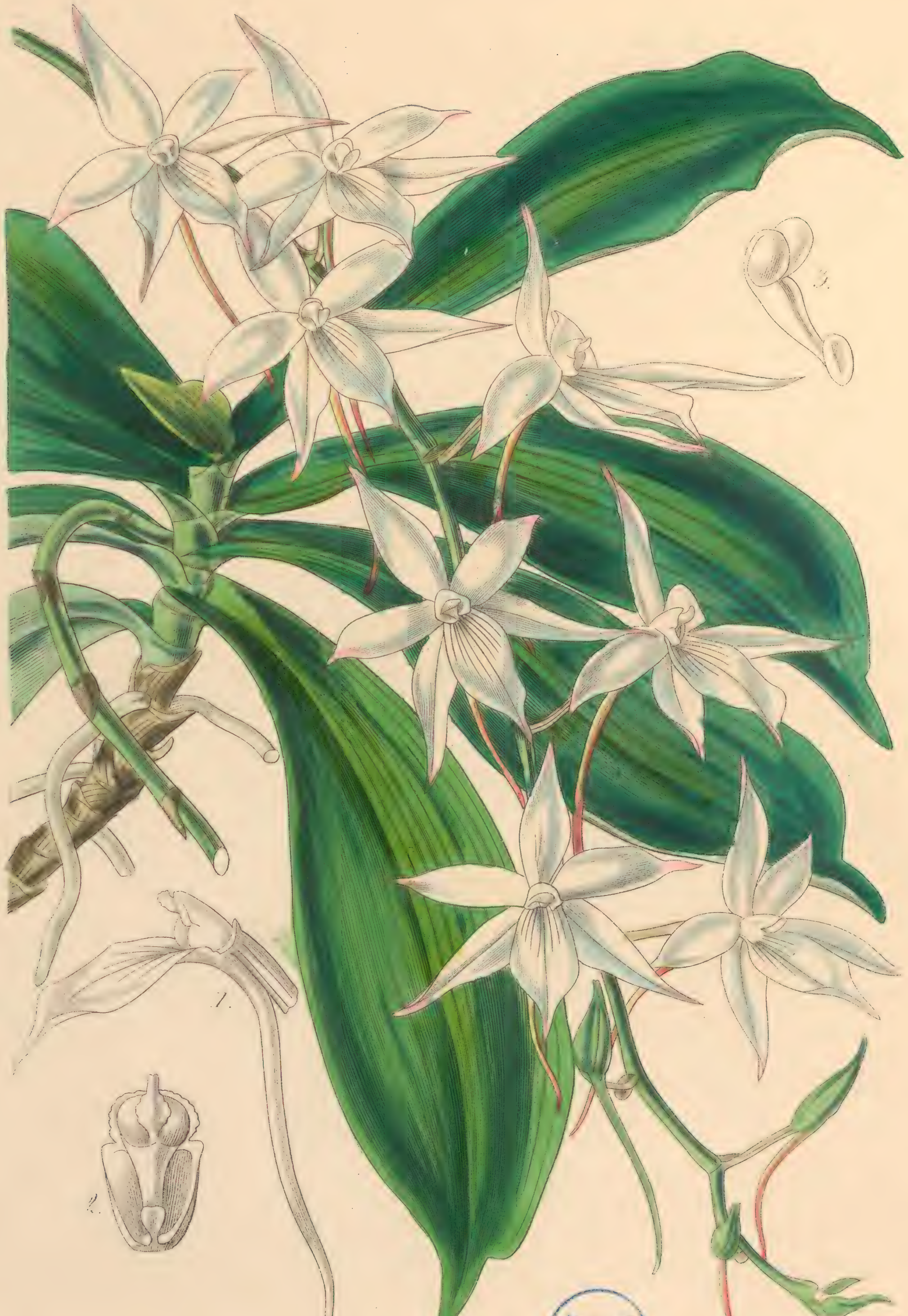


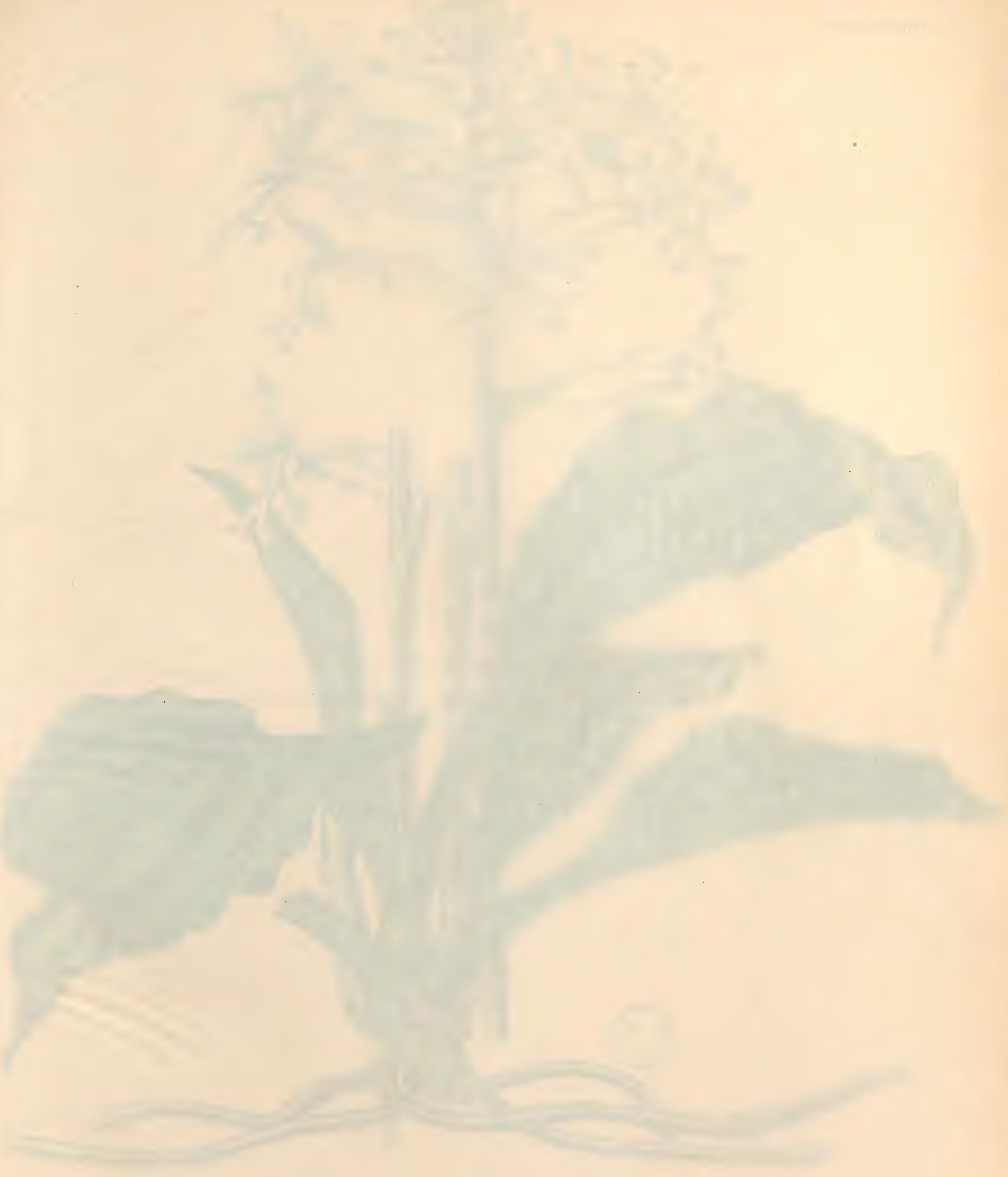
Plate XCII. ✓

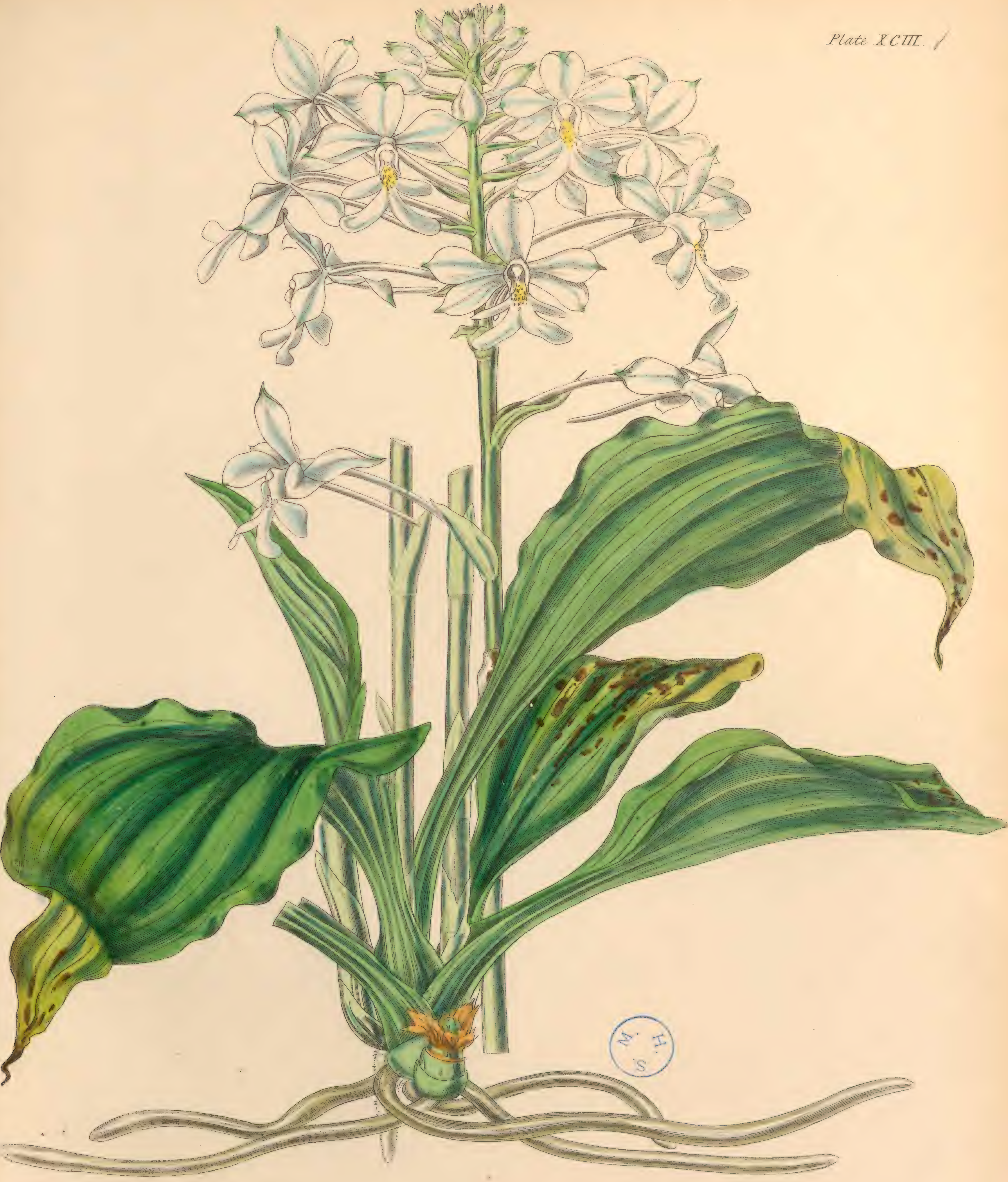


M. H. S.

Angræcum apiculatum.

Reeve, Benham & Reeve, imp.



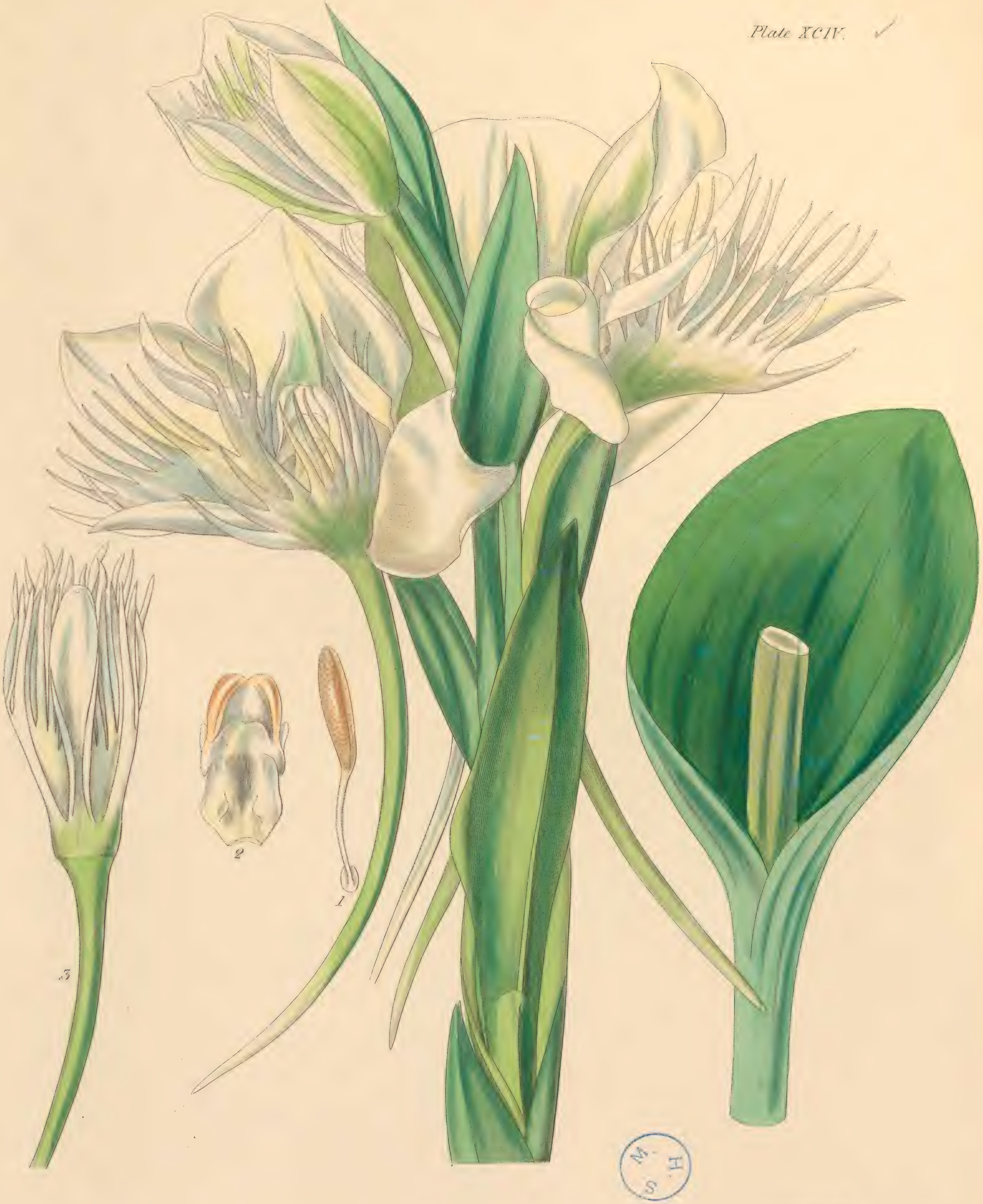


M. H. S.

Reeve Benham & Reeve imp.

Calanthe veratrifolia.

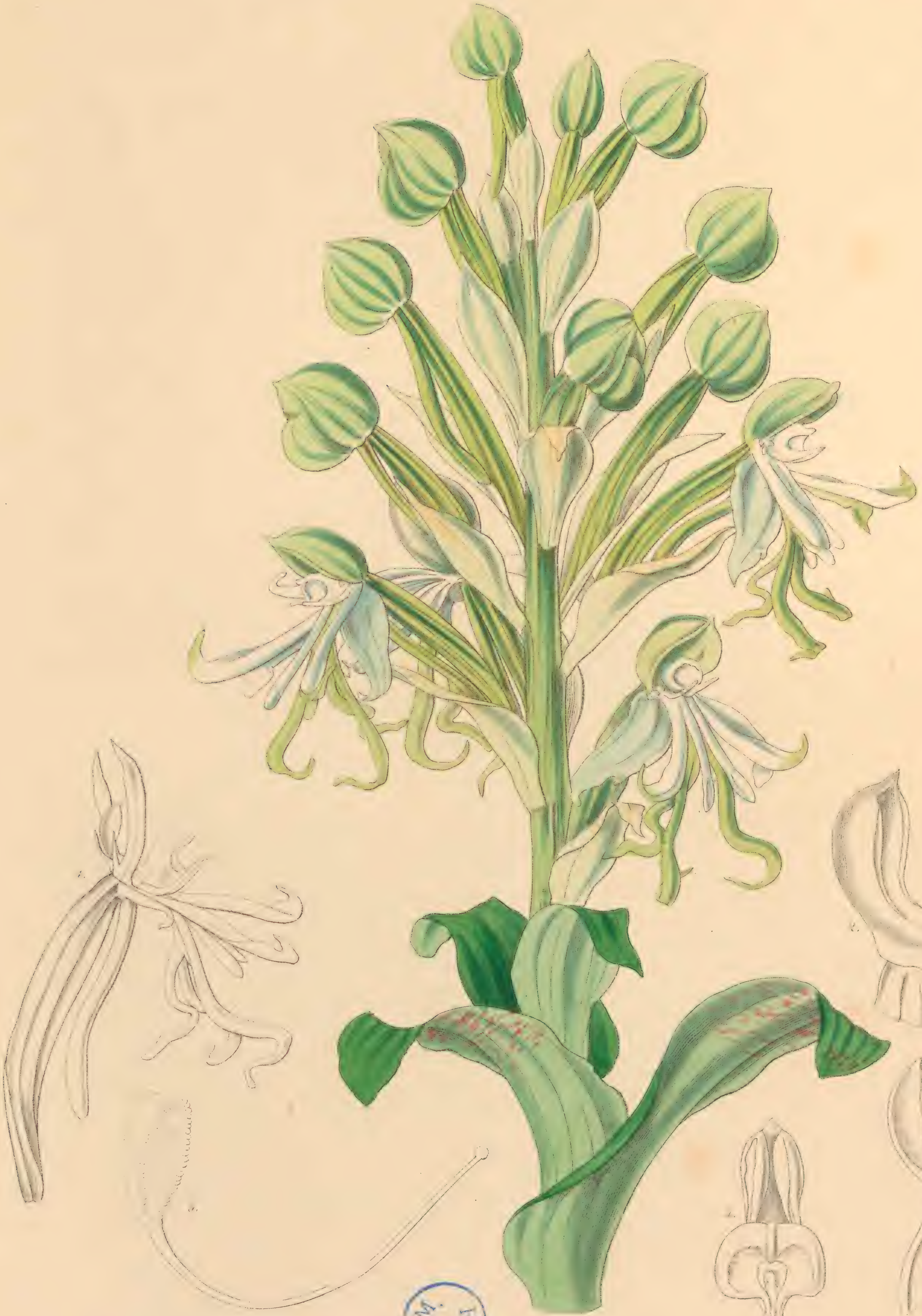
Plate XCIV. ✓



M. H. S.

Reeve Benham & Reeve imp.

Habenaria gigantea.

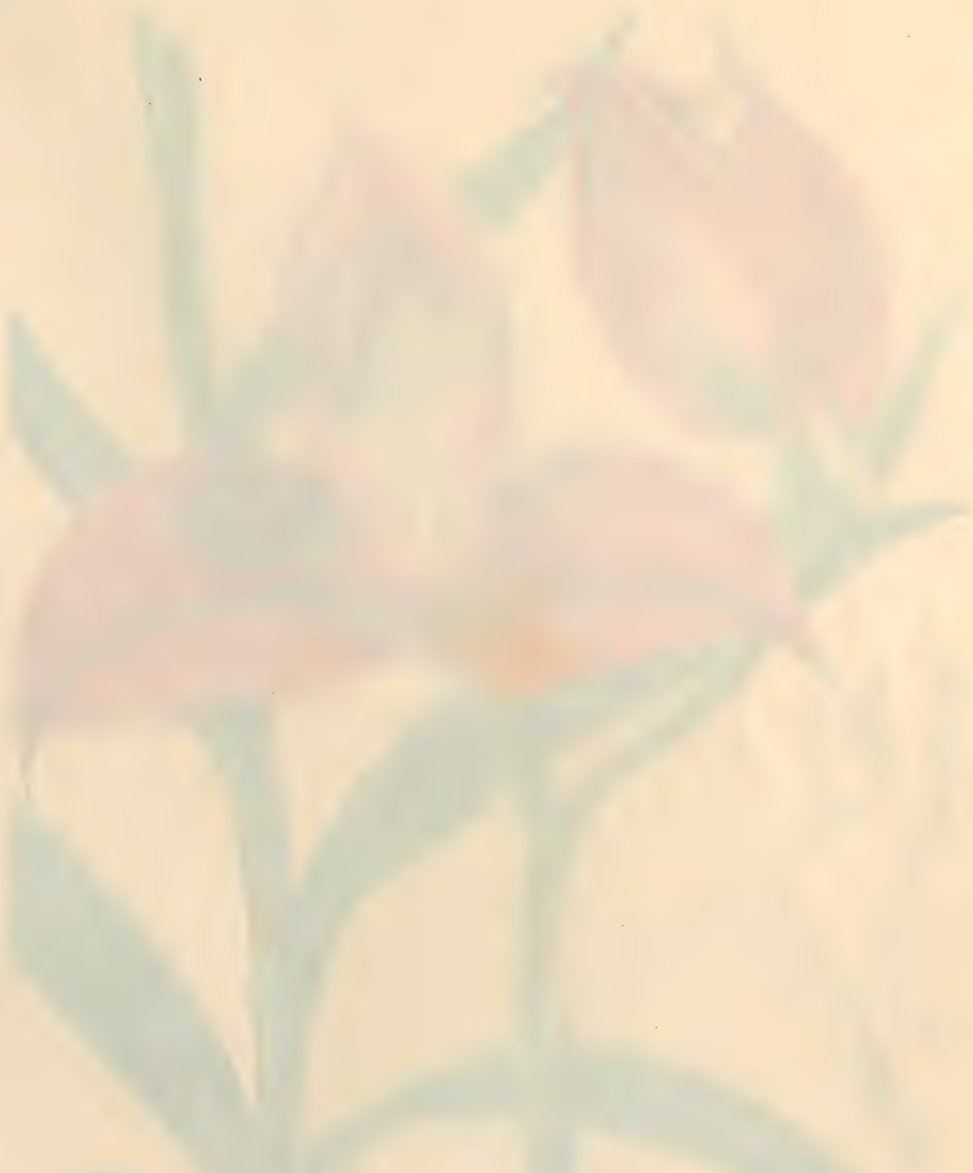


M. H. S.

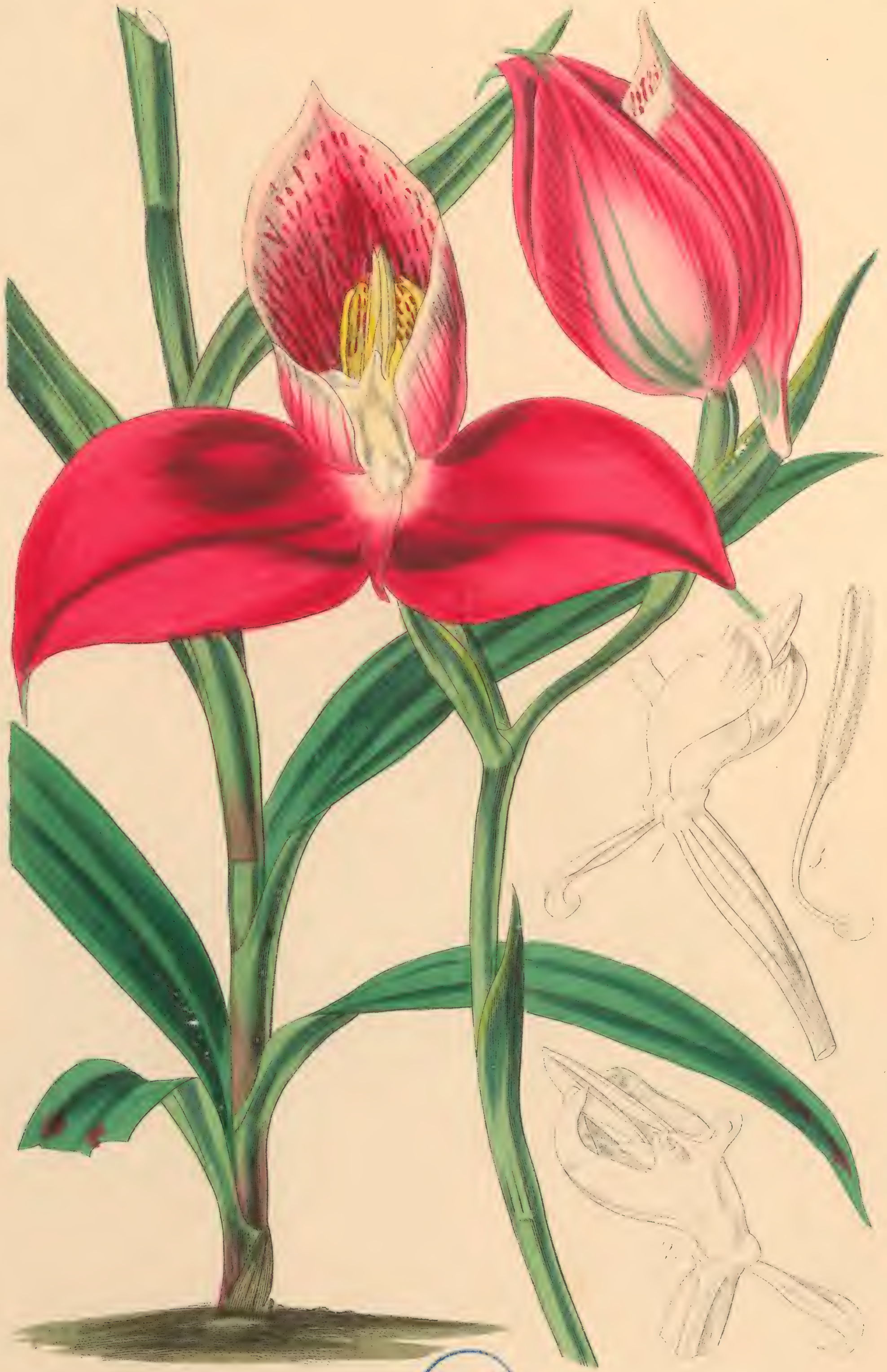
W. Fitch, del.

Reeve imp.

Bonatea speciosa.



96.



M. H. S.

W. Fitch, del.

Disa grandiflora.

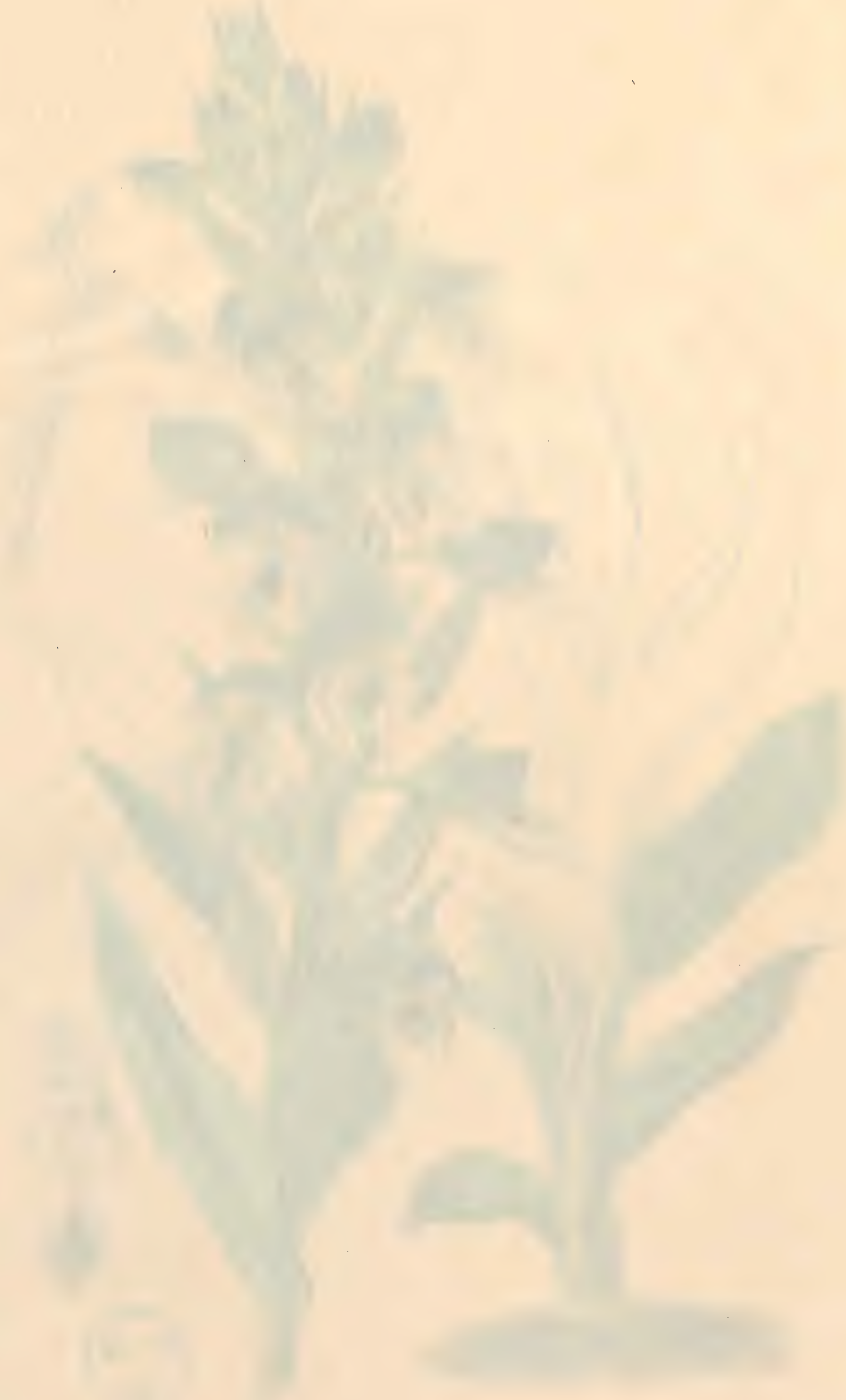
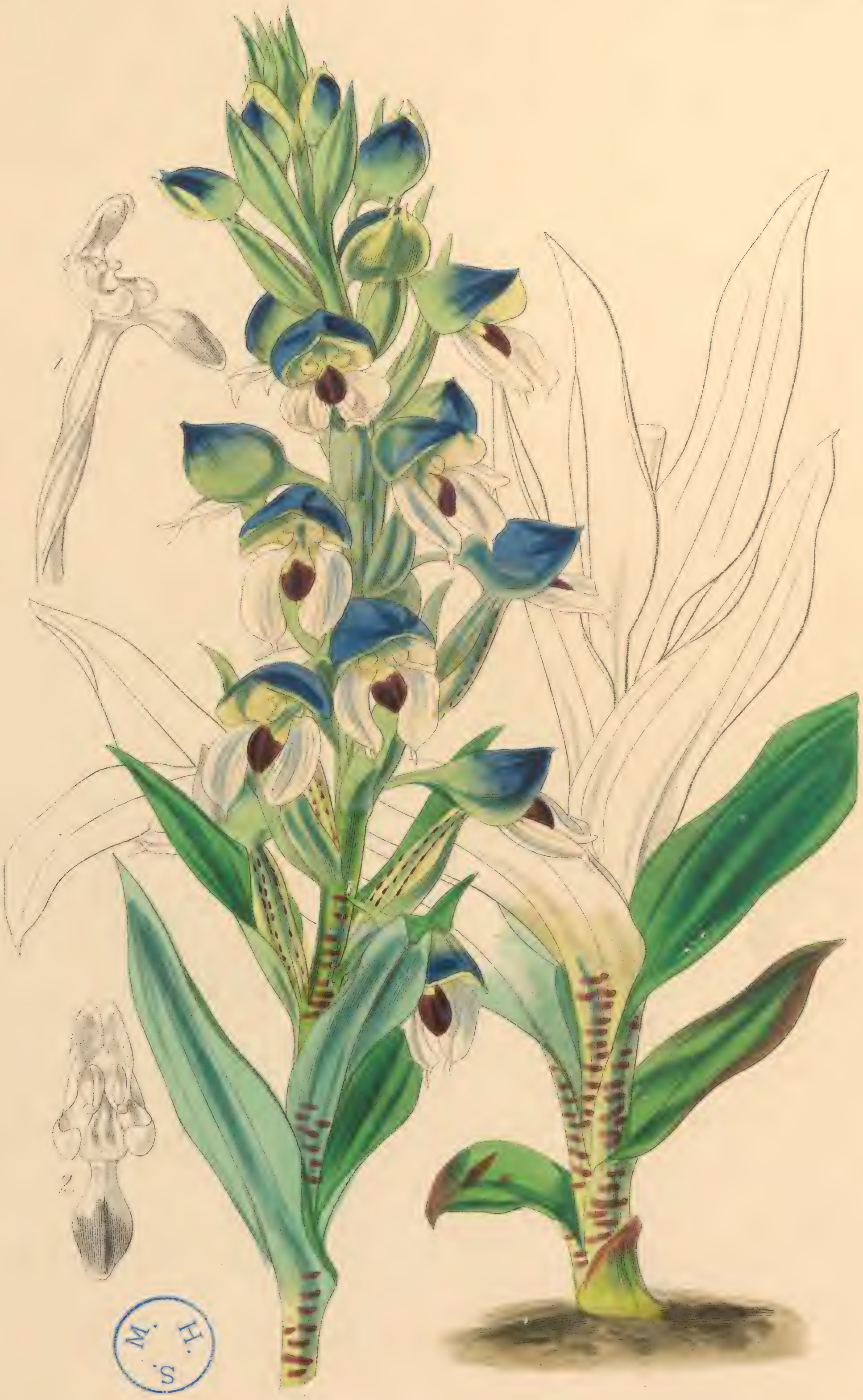


Plate 97. ✓



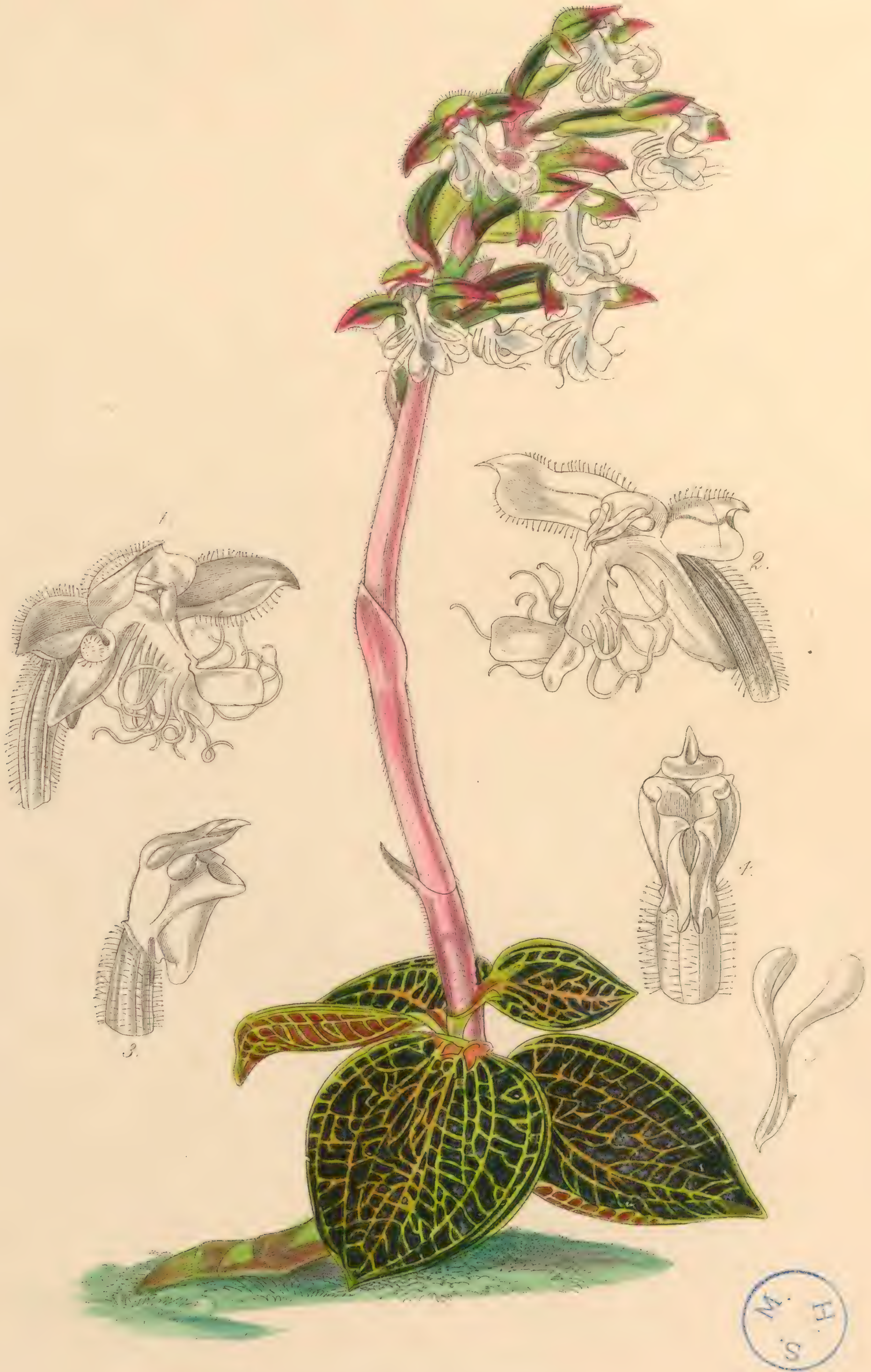
M. H. S.

W. Fitch, del

Reeve imp

Disa cornuta.

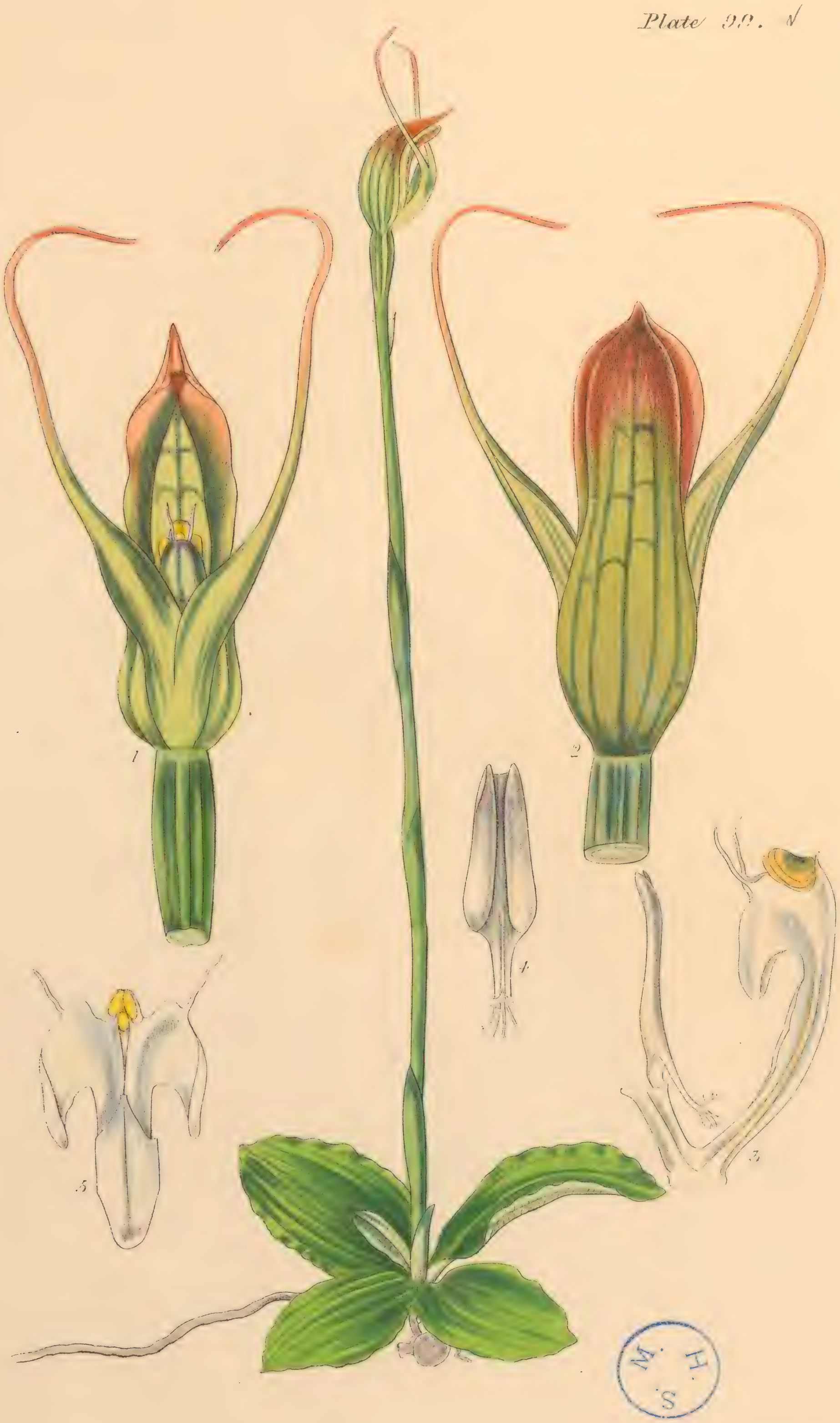
Plate XCVIII.



M. H. S.

Anœctochilus setaceus.

Plate 99. ✓



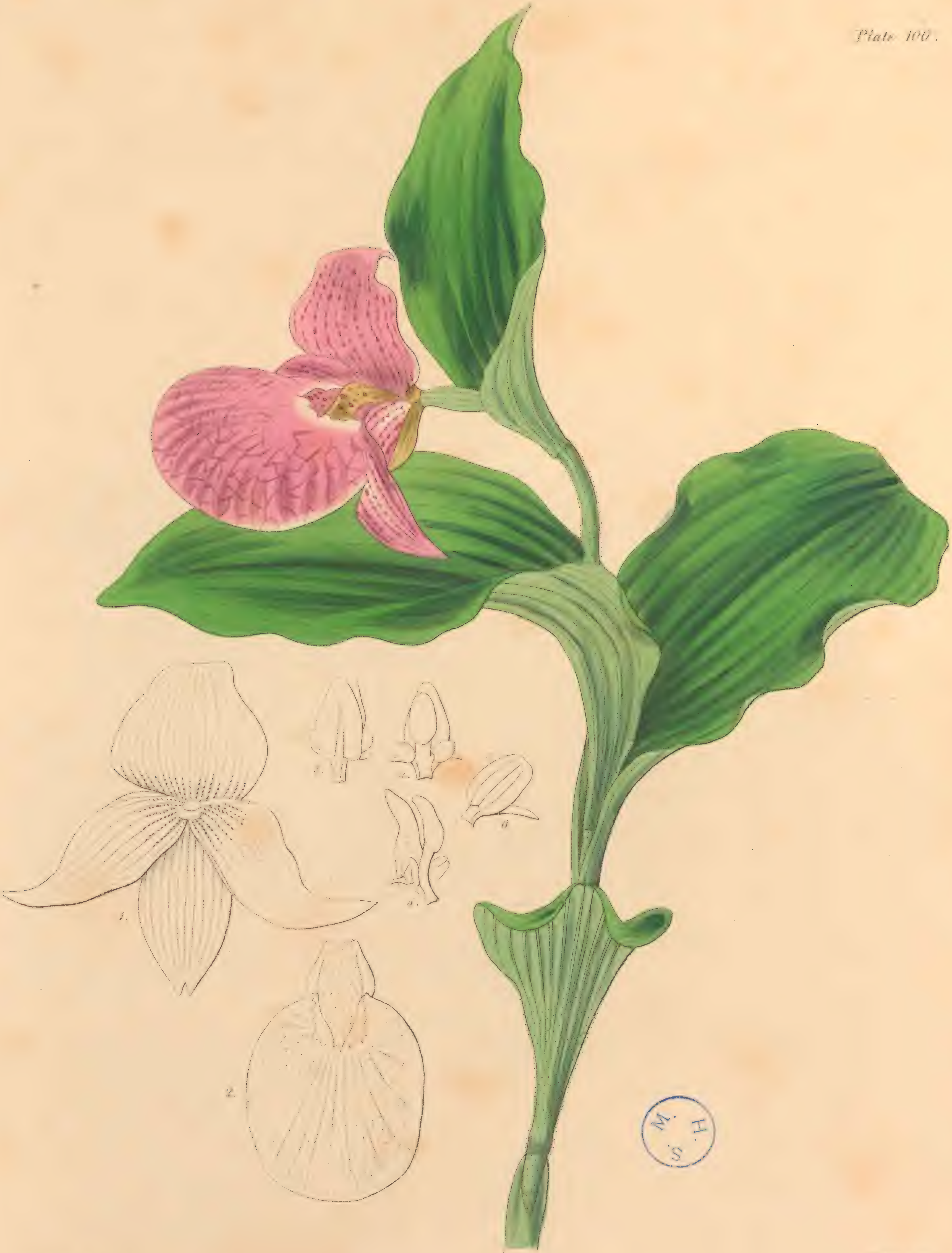
M. H. S.

W. Fitch, del.

Reeve, imp.

Pterostyles concinna.

Plate 100.



M. H. S.

W. Fitch, del.

[illegible]

Cypripedium macranthum.